School of Engineering

Dept of Mechanical & Electronic Engineering

Health and Safety File

Mechanical Engineering Laboratories W203 / W204

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
		<u>Offices</u>	
	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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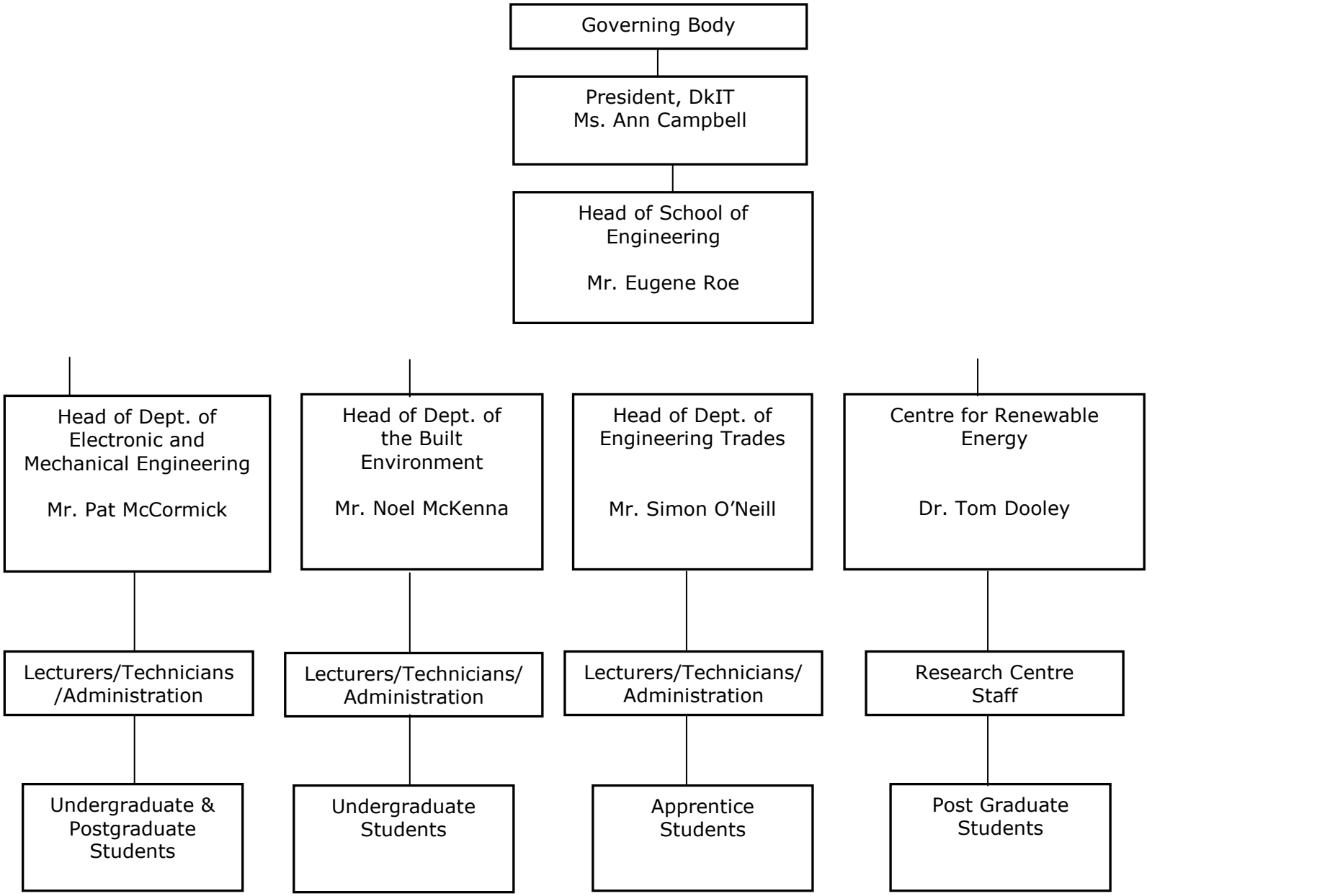

School of Engineering
Safety Management Organisation Chart

Appendix III

Safe Work Practice Sheets

SWPS ID	Mechanical Engineering Laboratories – W203, W204
SWPS 001	General Rules
GEN 002	Access and Egress
GEN 003	Fire Safety
GEN 08	Electrical Safety
GEN 005	Chemical Agents
GEN 009	Slips, Trips and Falls
GEN 010	Lone Person Working
GEN 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
SWPS 015	General Health and Welfare Provisions
SWPS 016	Emergency Response
SWPS 017	Emergency Contact Numbers

Engineering Specific Safe Work Practice Sheets Used in this Area:

MEC 001	Accuforce Elite Materials Tester
MEC 017	Hounsfield Universal Testing Machine
MEC 019	Impact Testing Machine
MEC 021	Magnetic Particle Flaw Detector
MEC 023	Placing Test weights on load Hangers
MEC 034	Whirling of Shafts Apparatus
MEC 035	Fatigue Machine
MEC 045	Indentec Rockwell Hardness Test
MEC 046	Metaserv Hand Grinder
MEC 047	Metaserv Universal Polisher
MEC 048	Metaserv Mounting Press
MEC 049	Journal Friction Apparatus
MEC 050	Mitutoyo (501) Surface Measuring Instrument
MEC 051	Neoview Ultra Violet Inspection Lamp
MEC 052	TV, Video and DVD Players
MEC 053	Torsion Testing Machine
MEC 054	Universal Vibration Apparatus
MEC 055	Flat & V Belt Friction Apparatus
MEC 056	Worm & Gear Wheel Apparatus
MEC 057	Fly Wheel Apparatus
MEC 058	Strut Testing Apparatus
MEC 059	Thin Cylinder Apparatus
MEC 060	Strain Indicator Gauges
MEC 061	Force Boards
MEC 062	Linear Air Track
MEC 063	Rolling Disc Apparatus
MEC 077	Leapfrog 3D Printer
MEC 081	Corded and Cordless Hand Held Drills

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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 Back to table of contents

Safe Work Practice Sheet Electrical Safety	Ref: SWPS 08
	Date: March 2009
	Assessed by: E. Bell

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 Institute. This Safe Work Practice Sheet covers Portable Appliance Testing and general electrical safety

Controls

- **General**
- 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 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)

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 005
	Date: July 09
	Assessed by:E.Roe

Hazards

Exposure to certain chemical agents can cause a range of injuries from minor to serious long term damage. A chemical is regarded as any substance (solid, liquid, aerosol or gas) which is used for the purpose of reacting with or effecting a change in another material. This definition extends beyond the narrow context of laboratory use and embraces broadest possible interpretation. It includes substances such as solvents, cleaning fluids, detergents, glues/resins, drain cleaners, paint strippers, preserving fluids as well as chemical reagents. A broad range of chemicals are in use throughout the Institute consisting of seemingly harmless readily available substances to highly specialised and reactive laboratory agents. Exposure may be through ingestion, inhalation, skin absorption, absorption through the mucous membranes.

Person Exposed to Risk

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

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)

Ensure Material Safety Data Sheets are made available

Personal protective equipment required (last resort)

Care must be taken in the selection of personal protective equipment, eg. 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 **2-4** = 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 : **1** x Severity **2-3** = Risk Factor **2-3**

Risk Assessment Review

As and when process changes or yearly

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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

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

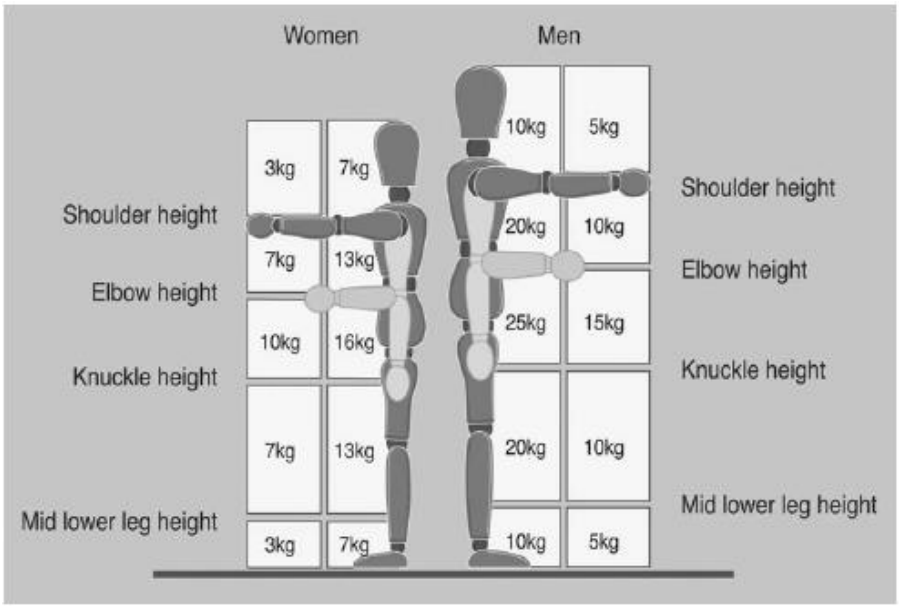

Figure 1. Guideline weights issued by the Health and Safety Authority.

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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:

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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

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

Risk Assessment Review

As and when process changes or yearly

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Safe Work Practice Sheet General Health and Welfare Provisions	Ref: SWPS MEC 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 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 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 on the campus: The Well, The Coffee Dock, The Main Canteen, 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 MEC 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/radiation/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.

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EMERGENCY CONTACT NUMBERS	Ref: SWPS MEC 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 III

Specific Safe Work Practice Sheets

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Safe Work Practice Sheet Accuforce Elite Materials Tester	Ref: SWPS MEC 001
	Date: 21/07/2014
	Revision No. 001
	Assessed by: G. Caffrey Approved by: E. Roe

Hazards

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

Mechanical
Crushing and entrapment of hands & fingers between machine moving bridge to base etc. Crushing when operating machine without guards or limit switches set. Entanglement of long hair or loose clothing with rotating screw resulting in neck or head injuries.

Flying, Ejected material / debris
The crushing of various testing materials in the machine can generate flying materials & result in loss of sight. Testing tensile strength of materials can result in ejected debris and cause permanent eye damage.

Falling Machine & Parts
Test machine is not securely placed on the work bench and falls causing upper and lower leg injuries, cuts and bruises.

Manual Handling
Adjusting and manoeuvring the machine into position can result in acute or lower back injuries.

Slips trips and falls
Poor housekeeping, personal belongings, wet floors can result in slipping and tripping causing falls and head and body impact injuries, cuts and bruises.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The Accuforce materials testing machine is used to carry out tensile, compressive and cyclical tests on a range of common engineering materials and artefacts.

Controls

- Students are permitted to operate the machine, under correct instruction and the lecturer or technician's supervision.
- Ensure that the machine power cable and plug are free from defects or damage prior to using.
- Do not use the machine if the power cable if damaged or defected in any way and remove from use.
- Competent person/s must only carry out machine maintenance and electrical repairs.
- Do not place fingers or hands between the moving parts of the machine.
- Do not touch rotating screw with hands or fingers.
- Ensure all machine guards and limit switches are in place and working prior to using the machine.
- Ensure that the limit switches are set at the correct height prior to using the machine.
- The wearing of loose clothing or jewellery is not permitted when operating the machine.
- Long hair must be neatly tied back or a well fitted cap worn.
- Students are not permitted under any circumstance to operate the machine.
- Students are permitted to observe the operation of the machine for the purpose of obtaining test results.
- Safety glasses to be worn when operating the machine and observing for test results.

- Safety guard to be closed during test.
- Ensure that the machine is secure and placed flat, firm and level on the chosen work bench where the test is carried out.
- Maintain a firm grip of machine parts when handling for installing to and from the machine.
- Follow the manual handling training guidelines when lifting, pulling or pushing etc. heavy loads.
- Maintain good housekeeping at all times.
- Personal belongings are not permitted at the workspace.
- The consumption of food and drink is not permitted in the lab.
- Switch off the machine when it is no longer required & remove and return the power cable to safe storage.

Checks & Inspections

- Regular maintenance to be carried out according to manufacturers 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

- Only a trained lecturer or technician it to operate the machine
- Students are only permitted to observe the operation to the machines
- Manual handling 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	2	=	Risk Factor	3 Low Risk

Risk Assessment Review

As and when process changes or yearly

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Safe Work Practice Sheet Hounsfield Universal Test Machine	Ref: SWPS MEC 017
	Date: 21/072014
	Revision No. 001
	Assessed by: G. Caffrey Approved by: E. Roe

Hazards

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

Mechanical
Crushing and entrapment of hands & fingers between machine moving bridge to base, frame etc. Entanglement of long hair or loose clothing with moving parts resulting in neck or head injuries. Pinching of fingers when operating the tensile chuck.

Manual Handling
Lifting and carrying the tensile chucks and various machine parts required for testing can result in lower back injuries.

Flying, Ejected material / debris
The crushing of various testing materials in the machine can generate flying materials & result in loss of sight. Testing tensile strength of materials can result in ejected debris and cause permanent eye damage.

Falling Machine & Parts
Test machine is not securely placed on the floor and falls causing upper body and lower leg impact injuries, cuts and bruises. Tensile chuck falls from hands or machine and results in lower leg & foot impact injuries.

Slips trips and falls
Poor housekeeping, personal belongings, wet floors can result in slipping and tripping causing falls and head and body impact injuries, cuts and bruises.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The Hounsfield materials testing machine is used to carry out tensile, compressive and cyclical tests on a range of common engineering materials and artefacts.

Controls

- Students are not permitted under any circumstance to operate the machine.
- Ensure that the machine power cable and plug are free from defects or damage prior to using.
- Do not use power cable if damaged in any way and remove from use.
- Competent person/s must only carry out machine maintenance and electrical repairs.
- Do not place fingers or hands between the moving parts of the machine when in use.
- The wearing of loose clothing or jewellery is not permitted when operating the machine.
- Long hair must be neatly tied back or a well fitted cap worn.
- Students are permitted to observe the operation of the machine for the purpose of obtaining test results.
- Do not place fingers between moving parts of the tensile chuck.
- Follow the manual handling training guidelines when lifting, pulling or pushing etc. heavy loads.
- Ensure that the machine is secure and placed flat, firm and level on the ground where the test is carried

out.

- Maintain a firm grip of machine parts when handling for installing or removal from the machine.
- Follow the manual handling training guidelines when lifting, pulling or pushing etc. heavy loads.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Food and drinks are not permitted in the labs.
- Safety glasses to be worn when operating the machine and observing for test results.
- Students and observers must be positioned at a safe distance from the machine, to be determined by the lecturer or technician, when in operation.
- Switch off the machine when it is no longer required.

Checks & Inspections

- Regular maintenance to be carried out according to manufacturers recommendations and records kept by the School
- Emergency stop buttons to be checked each semester
- Lecturers and technicians to monitor compliance with control measures
- Lecturers and technicians to monitor the wearing of PPE

Information, Instruction & Training

- Only a trained technician or lecturer is permitted to operate this machine.
- Manual Handling 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

Risk Assessment Review

As and when process changes or yearly

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Safe Work Practice Sheet Impact Testing Machine	Ref: SWPS MEC 019
	Date: 21/07/2014
	Revision No. 001
	Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Manual Handling
Lifting the pendulum of the machine into position can result in acute or chronic lower back or musculoskeletal injuries.

Mechanical
Crushing of hands or fingers, severing of fingers if in contact with swinging pendulum.

Slips, tips and falls
Poor housekeeping and personal belongings can cause trips resulting in fall impact head injuries.

Falling Machine
Machine not bolted to the work top can topple and fall resulting in lower leg cuts & brushing & feet crush injuries.

Flying Missile
Impact testing materials in the machine can cause flying missiles resulting in permanent loss of sight.

Metal Sharps
Cuts to fingers from handling tested impact metal pieces.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

An impact test in which a metal test piece is gripped at the end of one pendulum. This pendulum is then released simultaneously with another opposing pendulum. Both pendulums meet at the bottom of the swing creating an impact, normally breaking the test piece.

Controls

- Lecturers or technicians must only carry out the operation of this device.
- Students are not permitted to operate this device.
- Follow the manual handling training guidelines when operating the machine.
- Never place hands or fingers in between moving parts of the machine.
- Maintain good housekeeping at all times.
- Personal belongings are not permitted at or near the machine.
- Only trained persons are permitted to operate this machine.
- Follow the manufacturer's machine operating procedures at all times.
- Ensure that the machine is bolted secure to the workbench.
- Exercise caution for metal sharps when handling impact tested metal pieces, wear glove if required.
- Safety glasses to be worn by operators and observers
- All students and other observers must be positioned a safe distance from the machine, to be determined by the lecturer or technician, when in operation
- Machine must be locked in position when not in use

- A special key is required to lock and unlock the machine. The key is kept in the technicians office

Checks & Inspections

- Regular maintenance to be carried out according with manufacturers 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

- Only trained operators are permitted to operate this machine.
- Manual handling training

Personal protective equipment required (last resort)

- Safety glasses
- Gloves

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	2	=	Risk Factor	6 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

As and when process changes or yearly

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Safe Work Practice Sheet Magnetic Particle Flaw Detection	Ref: SWPS MEC 021 Date: 21/07/2014 Revision No. 001 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Electricity
Contact with a poorly installed, maintained, damaged or defected power cable or foot pedal cable could result in electrocution-death, or first, second and third degree burns.

Manual Handling
Moving of machine into required test position can result in acute or chronic lower back injury & or musculoskeletal injuries.

Falling Machine
Unsecure machine on workbench, moving the machine can result in a falling machine and impact and crush injuries to the feet.

Aerosols
Inhalation of chemicals being sprayed onto metals surfaces can result in acute respiratory tract irritation, coughing & wheezing and chronic illness. Hand and fingers skin irritation from handling contaminated sprayed metal components. Minor irritation to the eyes in contact with aerosols.

Chemicals
Hand and fingers in contact with liquid chemical on face plate of the machine resulting in minor skin irritation.

Slips, trips and falls
Poor housekeeping, personal belongings, trailing power and foot pedal cables can result in slips and trips causing fall impact head injuries.

Falling machine or test piece
Moving the machine into the required test position can result in a falling machine and lower leg and feet impact injuries. Metal test piece slips from hands and results in blunt force injuries to the lower legs and feet.

Mechanical
Entrapment of hands and fingers with holding clamps of the machine resulting in crush injuries.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

Using magnetic particle techniques to reveal surface flaws in metal components and artefacts.

Controls

- Students are permitted to operate the machine, under correct instruction and the lecturer or technician's supervision.
- Ensure that all electrical power cables are in good working order and free from defects prior to use, do not use if damaged in any way.
- Competent persons must only carry out repairs on electrical equipment.
- Seek assistance when moving the machine into required testing position on work bench.
- Follow the manual handling training guidelines when moving the machine.
- Ensure the base of the machine is firmly supported on the work bench when placing into test position.
- Ensure the room is well ventilated prior to using aerosol sprays.

- Wear gloves when using aerosol sprays & handling contaminated metal test pieces.
- Apply aerosol spray as per manufacturer's instructions.
- Never try to smell the aerosol spray.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Ensure the machine power cable is plugged into the socket directly above the work bench.
- Ensure the machine foot pedal cable is not training along the workbench walkway when in use.
- Where possible slide the machine along the workbench into the test position.
- Ensure the metal test pieces are firmly held by the hands when placing into the machine for testing.
- Clean and dry off any residual aerosol spray from the machine face plate and parts.
- Safety glasses to be worn.
- Always wash your hands when finished using the test equipment and aerosols.
- Do not place hands or fingers in between the holding clamps of the machine.

Checks & Inspections

- Earth leakage circuit breaker to be fitted to electrical supply and checked every term.
- Regular maintenance to be carried out according with manufacturers recommendations and records kept by the School.
- Lecturers and technicians to monitor the wearing of PPE.

Information, Instruction & Training

- Only trained operators are permitted to operate machine
- Manual handling training.
- PPE training.
- Chemical training MSDS

Personal protective equipment required (last resort)

- Safety glasses
- Safety 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 Placing Test Weights on Load Hangers	Ref: SWPS MEC 023
	Date: 21/07/2014
	Revision No. 001
	Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Manual Handling
Lifting and placing of weights onto or removing from the machine can result in acute or chromic lower back or musculoskeletal injuries.

Falling machine
Machine not secure on the workbench, damaged or missing legs resulting in falling items causing lower leg and feet impact injuries.

Falling weights
Dropping weights onto the machine can result in impact injuries to the hand and fingers. Lifting and holding too many weights, resting weights on bench edge resulting in falling weight and lower leg and feet impact injuries. Machine cord breaks due to wear and tear or dropping of weights, weights fall due to being loaded in the same way resulting in lower leg and feet impact injuries.

Slips trips and falls
Poor housekeeping, personal belongings can cause slip and trip hazards resulting falls and head and body impact injuries.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

Calibrated weights are used in a range of experimental equipment to load test beams, structures and machines for the purposes of examining deflection, loading and stresses induced in mechanical systems.

Controls

- Students are permitted to operate the machine, under correct instruction and the lecturer or technician's supervision.
- Ensure that manual handling training guide lines are followed at all time.
- Ensure that the legs of the machine are in place and set in the correct position to stabilise the machine.
- Ensure that the machine is positioned firmly and securely on the work bench and in from the work bench edge.
- Never drop weights from a height onto machine, always slide the weight onto the machine.
- Hold one weight at a time and place and side it onto the machine.
- Inspect the machine cord prior to use, replace the cord if damaged.
- Maintain good housekeeping and work area free from personal belongings at all times
- Follow the manufacture standard operating procedures at all times.
- Good practice as per lecturer's and technician's instructions are employed when handing calibrated weights and when loading experimental and test apparatus.
- Weights must be kept at least 300mm from the edge of the bench
- When loading weights onto hangers, each weight should be rotated through at least 90 degrees from the previous weight loaded on the same hanger. This ensures that a series of weights cannot slip off the hanger at the same time.

Checks & Inspections

- Hangers are inspected annually. Any damaged or weakened hangers are discarded and replaced.

Information, Instruction & Training

- All students are given instruction in the safe use of weights and equipment for which weights are required.
- Manual handling trainig

Personal protective equipment required (last resort)

- Boots, Gloves

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

As and when process changes or yearly

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Safe Work Practice Sheet Whirling of Shafts Apparatus	Ref: SWPS MEC 034
	Date: 21/07/2014
	Revision No. 001
	Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Manual Handling
Lifting and placing the machine onto the required workbench can result in acute or chronic lower back and or musculoskeletal injuries.

Slips trips and falls
Trailing power cable, poor housekeeping, and personal belongings can cause slips and tipping resulting in falls and impact head and body injuries.

Electricity
Poorly fitted, not maintained, damaged or loose electrical wiring can result in electrocution-death or first second or third degree burns.

Falling machine
Carrying the machine or placing on the edge of the work bench can result in a falling machine and cause lower leg and feet crush injuries, cuts and bruising.

Mechanical
Entanglement of long hair, loose clothing or jewellery with rotating shaft can result in minor cuts and bruising to hands, wrists and face.

Person Exposed to Risk

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

This apparatus is used to measure and examine physical or scientific properties of shafts rotating at high speeds.

Controls

- Students are permitted to operate the apparatus, under correct instruction and the lecturer or technician's supervision.
- Follow the manual handling training guidelines when moving and placing the machine.
- Ensure required workbench is free from clutter etc. prior to moving the machine.
- Seek assistance when moving the machine.
- Do not transport the machine with the power cable attached.
- Avoid the trailing of cables by using the power sockets on top of the work bench.
- Personal belongings are not permitted at or near the work bench.
- Maintain good housekeeping at all times.
- Ensure electrical cable and plugs are free from damage or defects prior to use. Do not use the machine if cable or plugs are damaged in any ways and remove from use for repair.
- Competent person must only carry out electrical repairs.
- Always place the machine firmly on top of the work bench and in from the bench edge.
- Do not wear jewellery or loose clothing when operating the machine.
- Long hair must be tied back or a well fitted cap worn.
- Never tamper with the machine safety guards or interlocks.

- Guard must be in place in order for the shaft to continually rotate.
- Ensure that interlock on the safety guard is operating properly.
- Check that the emergency stop is working properly.
- 2 whirl guards must be used for long shafts.
- 1 whirl guard must be used for short shafts.
- Follow the manufacturer's machine operating and set up procedures at all times.
- Return the machine to storage when it is no longer required.

Checks & Inspections

- Regular maintenance inspections to be carried out and records kept by the School
- Check periodically that the emergency stop is working properly
- Check periodically that safety interlock on the safety guard is operating properly
- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- All students are given training before being allowed to use this apparatus
- Students are supervised while operating the apparatus
- Manual handling training

Personal protective equipment required (last resort)

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

Risk Assessment Review

As and when process changes or yearly

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Safe Work Practice Sheet Fatigue Machine	Ref: SWPS MEC 035
	Date: 21/07/2014
	Revision No. 001
	Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Electricity
Poorly fitted, not maintained, damaged or loose electrical wiring can result in electrocution-death or first second or third degree burns.

Slips trips and falls
Trailing power cable, poor housekeeping, and personal belongings can cause slips and tipping resulting in fall impact head and body injuries.

Mechanical
Entanglement of long hair, loose clothing, jewellery with rotating chuck head can result in minor cuts and bruising to hands, wrists and face.

Sharps
Holding, touching, removing fatigued metal can result in minor cuts to the hands and fingers. Minor cuts to the hands from adjusting the chuck clamp.

Falling machine
Vibration of running machine can result in machine falling from the bench and cause lower leg and feet crushing injuries.

Manual Handling
Lifting, placing and pushing the machine on the workbench can result in acute or chronic lower back and musculoskeletal injuries.

Person Exposed to Risk

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

This machine is used to measure and test various engineering materials and their stress levels where loads are applied to it from 2N upwards.

Controls

- Students are permitted to operate the machine, under correct instruction and the lecturer or technician's supervision.
- Ensure electrical cable and plugs are free from damage or defects prior to use. Do not use the machine with damaged electrical cables, plugs. Competent person must only carry out electrical repairs.
- Avoid trailing power cables and use the power socket at the back of the machine.
- Personal belongings are not permitted at or near the machine test area.
- Maintain good housekeeping at all times.
- Guard must be in place in order for the machine to operate.
- Ensure that interlock on the safety guard is operating properly.
- Check that the emergency stop is working properly.
- Never tamper with machine guards or interlocks.

- Do not touch or handle metal test pieces by the fatigued end, use gloves if required.
- Avoid touching the chuck clamp when adjusting.
- Ensure the machine is securely placed on the work bench and as near to the back wall as possible.
- Periodically inspect the machine for forward movement when running.
- Follow the manual handling training guide lines at all times, seek assistance if required with heavy loads,
- Insert the specimen through the loading unit into the chuck; so that the edge of the machined radius just meets the front edge of the chuck
- Tighten the chuck onto the specimen and the screw on the loading Unit
- Use the actuator to apply a small load of 2 or 3N ONLY
- Close the guard when the test piece is loaded.
- Do not tamper with machine guards or interlocks.
- Ensure the machine is at least 150mm from the edge of the bench.
- Always follow the manufacturer's standard operating procedures.

Checks & Inspections

- Regular maintenance inspections to be carried out in compliance with Part 2 chapter 2 – use of work equipment (General Application) regulations 2007 S.I. No 299 of 2007 and in accordance with manufacturer's recommendations. Records kept by the School.
- Check periodically that the emergency stop is working properly
- Check periodically that safety interlock on the safety guard is operating properly
- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- All students are given training before being allowed to use this machine.
- Students are supervised while operating this machine.
- 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

Risk Assessment Review

As and when process changes or yearly

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Safe Work Practice Sheet Indentec Rockwell Hardness Test	Ref: SWPS MEC 045 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

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

Slips trips and falls
Trailing power cables, poor housekeeping, and personal belongings can result in trips and slips causing fall impact head and body injuries.

Falling machine
Unsecure, badly mounted machine can fall and cause lower leg and feet crushing injuries.

Mechanical
Crushing of hands and fingers when in between ascending anvil indenter.

Falling objects
Unsecure hold of or carrying too many pieces of equipment can result in falling objects that cause lower leg or feet impact injuries.

Manual Handling
Lifting, holding or carrying test equipment or materials can cause acute or chronic lower back or musculoskeletal injuries.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The machine is used to test the hardness of metals.

Controls

- Students are permitted to operate the machine, under correct instruction and the lecturer or technician's supervision.
- Ensure electrical cable and plugs are free from damage or defects prior to using the machine.
- Do not use the machine if cable or plugs are damaged in any way and remove from use for repair by a competent person.
- Maintain good housekeeping at all times.
- Personal belongings are not permitted at or near the machine.
- Ensure the machine is mounted level on a firm and solid base.
- Never place hands or fingers between the ascending anvil and indenter piece.
- Use both hands for ascending the anvil.
- Do not carry too many test pieces or materials when setting the machine up.
- Ensure to maintain a secure hold of hand held equipment.
- Follow the manual handling training guidelines at all times.

Checks & Inspections

- Regular maintenance inspections to be carried out in compliance with Part 2 chapter 2 – use of work equipment (General Application) regulations 2007 S.I. No 299 of 2007 and in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- Manual Handling

Personal protective equipment required (last resort)

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 Metaserv Hand Grinder	Ref: SWPS MEC 046 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Slips trips and falls
Poor housekeeping, personal belongings can result in falls and impact head and body injuries. Water hose pipe not connected into the sink or splashing of water from grinding, can result in slips and fall impact head and body injuries.

Falling machine
Unsecure, badly mounted machine on work bench can fall and cause lower leg and feet impact injuries, minor cuts and bruising.

Manual Handling
Lifting, holding or carrying the hand grinder into position can result in musculoskeletal injuries.

Manually Grinding
Grinding pieces of Bakelite on the grinder can result in fingertip skin abrasions when held too close to grinding surface.

Dust
Grinding pieces of Bakelyte without water can result in inhalation of dust & cause respiratory irritation and illness. Grinding material can result in inadvertent ingestion of particles causing irritation of the stomach and skin on hands.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The machine is used to manually grind pieces of test Bakelite.

Controls

- Students are permitted to operate the device, under correct instruction and the lecturer or technician's supervision.
- Maintain good housekeeping at all times.
- Personal belongings are not permitted at or near the machine.
- Ensure the machine is mounted level and in from the edge of the work bench beside the sink.
- Ensure that the water drain pipe from the grinder is set up into the sink drain.
- Clean and dry up any water on the floor as soon as possible.
- Follow the manual handling training guidelines at all times.
- Ensure there is an adequate water supply on grinder when grinding materials.
- Ensure that there is adequate ventilation when using the grinder.
- Maintain fingertips at a minimum of 1 centimetre above the grinding surface.
- Always wear gloves when grinding materials on the grinder.
- Dispose of gloves carefully.
- Wash hands thoroughly when work is complete.

Checks & Inspections

- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- Manual Handling
- Chemical Training
- PPE Training
- MSDS

Personal protective equipment required (last resort)

- Gloves
- Safety Boots

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 Metaserv Universal Polisher	Ref: SWPS MEC 047 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

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

Mechanical
Entanglement of Loose clothing, long hair in contact with rotating discs causing minor cuts and bruising.

Slips trips and falls
Poor housekeeping, personal belongings can cause tripping and fall impact head and body injuries. Trailing power cable can result in trips and impact fall head and body injuries. Spilled water from the machine on the floor can result in slipping causing fall impact head injuries.

Aerosol
Spraying Diamond Suspension liquid onto the grinding pad can result in the inhalation of aerosols causing minor respiratory, eye and skin irritation..

Falling machine
Unsecure, badly mounted machine on work bench can fall and cause lower leg and feet impact injuries causing minor cuts and bruising.

Manual Handling
Lifting, holding, carrying or pushing the polisher into position can result in acute or chronic lower back or musculoskeletal injuries.

Machine Polishing
Polishing pieces of Bakelite on the polisher grinding pad can result in fingertip skin abrasions and minor cuts when held too close to the polishing surface.

Dust
Polishing pieces of Bakelyte without water can result in inhalation of dust & cause acute or chronic respiratory irritation and illness. Polishing materials can result in inadvertent ingestion of particles causing irritation of the stomach and skin on hands.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The machine is used to manually grind pieces of test Bakelite.

Controls

- Students are permitted to operate the machine, under correct instruction and the lecturer or technician's supervision.
- Ensure that all electrical cables and plug are in good working order prior to use.
- Don't use the machine if electrical cable or plugs are damaged or defected, remove from use for repair.
- Competent persons must carry out electrical repairs.
- Loose clothing must not be worn when operating the polisher.
- Long hair must be neatly tied back or a well fitted cap covering the hair.
- Maintain good housekeeping at all times.
- Personal belongings are not permitted at or near the machine.
- Avoid the trailing of power cables and use the sockets mounted above the work bench.
- Ensure the machine is mounted level and in from the edge of the work bench.
- Follow the manual handling training guidelines at all times.
- Clean and dry up any water on the floor as soon as possible.
- Ensure there is an adequate amount of water on the polisher pad when operating.
- Ensure that there is adequate ventilation when using the polisher and equipment.
- When required, apply polishing spray, sparingly.
- Maintain fingertips at a minimum of 1 centimetre above the rotating polishing surface.
- Always wear safety gloves & glasses when machine polishing and grinding.
- Dispose of gloves carefully.
- Wash hands thoroughly when work is complete.

Checks & Inspections

- Regular maintenance inspections to be carried out in compliance with Part 2 chapter 2 – use of work equipment (General Application) regulations 2007 S.I. No 299 of 2007 and in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- Manual Handling
- Chemical Training
- PPE Training
- MSDS

Personal protective equipment required (last resort)

- Gloves
- Safety Glasses
- 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 Metaserv Mounting Press	Ref: SWPS MEC 048 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

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

Mechanical
Entrapment of hand and fingers, loose clothing & long hair in-between ascending cup and cylinder causing minor cuts and bruising. Crushing of hands and fingers in-between ascending cup and cylinder.

Slips trips and falls
Poor housekeeping, personal belongings can cause tripping and fall impact head and body injuries. Trailing power cable can result in trips and impact fall head and body injuries. Leaking hydraulic fluid oil, damaged water hose, loosely connected hoses to the machine can spill onto the floor and result in slipping causing fall impact injuries.

Falling machine and Parts
Unsecure, poorly mounted, manually operating the machine on the work bench can result in a falling machine and cause lower leg and feet crushing and or impact injuries. Unsecure hold to trust cup and machine parts causing fall impact lower leg and feet injuries.

Manual Handling
Lifting, holding, carrying or pushing the press into position can result in acute or chronic lower back and or musculoskeletal injuries.

Dust
Decanting Bakelite powder for extended periods of time, poor ventilation can result in inhalation of fine dust causing acute or chronic respiratory and or skin and eye minor irritation and disease. Inadvertent ingestion of Bakelite particles from placing hands and fingers to mouth resulting in acute minor stomach irritation.

Temperature
Faulty thermostat, water supply not connected, leaking hose or Inadequate flow to the machine can result in first & second degree burns to the hands and fingers when removing test material from the machine. Burnt fingers from touching test plugs.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The machine is used as a mounting press for encapsulation of samples using hot mounting resin.

Controls

- Students are permitted to operate the machine, under correct instruction and the lecturer or technician's supervision.
- Ensure that all electrical cables and plugs are in good working order prior to use.
- Do not use damaged or defected electrical cable or plugs.
- Competent persons must carry out electrical repairs.

- Loose clothing or jewellery must not be worn when operating the machine.
- Long hair must be neatly tied back or a well fitted cap covering the hair.
- Never place hands or fingers in be-tween moving parts (ascending cup and cylinder) of the machine.
- Maintain good housekeeping at all times.
- Personal belongings are not permitted at or near the machine.
- Avoid the trailing of power cables and use the sockets mounted above the work bench.
- Ensure the machine is mounted level and in from the edge of the work bench. Maintain a secure hold of machine parts when handling.
- Seek assistance to further secure the machine when operating it.
- Follow the manual handling training guidelines at all times.
- Ensure there is good water pressure and machine water hose is free from damage and is connected properly to & from the machine prior to use.
- Allow test plugs and any other heated materials to cool adequately before handling.
- Clean and dry up any water or oil leaks on the floor as soon as possible.
- Ensure that there is adequate ventilation when decanting Bakelite powder.
- Wear a dust mask when decanting Bakelite.
- Never place hands or fingers near the mouth during or after handling Bakelite.
- Wear appropriate PPE.
- Dispose of gloves carefully.
- Wash hands thoroughly when work is complete.

Checks & Inspections

- Regular maintenance inspections to be carried out in compliance with Part 2 chapter 2 – use of work equipment (General Application) regulations 2007 S.I. No 299 of 2007 and in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- Manual Handling
- Chemical Training
- PPE Training
- MSDS

Personal protective equipment required (last resort)

- Gloves
- Dust Mask
- 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 Journal Friction Apparatus	Ref: SWPS MEC 049 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

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

Manual Handling
Lifting, carrying or pushing the machine from the lab stores into the lab lecturing room can result in acute or chronic lower back and musculoskeletal injuries.

Mechanical
Entrapment of fingers or hand, when in contact with machine rotating motor shaft, causing major cuts, bruising, & crushing of hands and fingers. Entanglement of loose clothing, long hair or jewellery resulting in minor cuts and bruises.

Slips trips and falls
Poor housekeeping, personal belongings, trailing power cables can cause tripping and fall impact head and body injuries. Leaking cooling oil from the machine can result in slipping causing fall head impact injuries.

Falling machine and Weights
The machine can fall when manually transporting to and from the stores, causing lower leg and feet crush injuries. Unsecure hold of, overloading of weights for machine can fall resulting in lower leg and feet crush injuries.

Chemicals
Prolonged or repeated exposure to lubricating oil can result in oil acne/ folliculitis and minor irritation.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The machine is used to determine the friction torque in a plain journal bearing under varying conditions of load, speed and lubrication.

Controls

- Students are permitted to operate the machine, under correct instruction and the lecturer or technician's supervision.
- Ensure that all electrical cables and plugs are in good working order prior to use.
- Do not use the machine if electrical cable or plugs are damaged or defected in any way and remove form use fro repair.
- Competent persons must carry out electrical repairs.
- Follow the manual handling training guidelines at all times, seek assistance if required when moving the machine
- Long hair must be neatly tied back or a well fitted cap worn when operating the machine.
- Loose clothing or jewellery must not be worn when operating the machine.
- Never touch the rotating shaft of the machine.

- Never place hands or fingers in between rotating shaft and supporting base table.
- Follow the manufacturer's standard operating procedures at all times
- Maintain good housekeeping and work area free from personal belongings at all times.
- Avoid the trailing of electrical power cables, plug the machine into the socket mounted on the wall behind the machine.
- Use a plastic tray to catch any leaking oil from the machine.
- Clean any oil in contact with the floor immediately.
- Seek assistance when moving the machine to and from the stores.
- Maintain a secure hold of weights when carrying to and from stores.
- Wear gloves when using machine lubricating oil or cleaning any oil from the floor.
- Dispose of gloves carefully.
- Wash hands thoroughly when work is complete.

Checks & Inspections

- Regular maintenance inspections to be carried out in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures.

Information, Instruction & Training

- Manual Handling
- Chemical Training
- PPE Training
- MSDS

Personal protective equipment required (last resort)

- 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

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Safe Work Practice Sheet MituToyo (501) Surface Measuring Instrument	Ref: SWPS MEC 050 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

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

Manual Handling
Lifting, carrying or pushing the machine control unit from the work bench can result in acute or chronic lower back and or musculoskeletal injuries.

Mechanical
Entrapment & crushing of fingers or hand, when in between descending motor drive and base table or ascending motor drive and machine column. Entanglement of loose clothing or long hair when in contact with rotating shaft screw.

Slips trips and falls
Poor housekeeping, personal belongings and trailing power cables can cause slipping and tripping resulting in fall impact head and body injuries.

Falling machinery and parts
Machine control unit not mounted properly on the workbench falls resulting in lower leg and feet impact injuries. Unsecure hold of levelling table and machine parts, resulting in lower leg and feet crush injuries.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The machine is used to determine the friction torque in a plain journal bearing under varying conditions of load, speed and lubrication.

Controls

- Students are permitted to operate the machine, under correct instruction and the lecturer or technician's supervision.
- Ensure that all electrical cables and plugs are in good working order prior to use.
- Do not use machinery with damaged or defected electrical cable or plugs. Remove from use for repair.
- Competent persons must carry out electrical repairs.
- Follow the manual handling training guidelines at all times, seek assistance if required when moving the machine
- Long hair must be neatly tied back or a well fitted cap worn when operating the machine.
- Loose clothing or jewellery must not be worn when operating the machine.
- Never place hands or fingers in between the machine ascending or descending parts.

- Maintain good housekeeping at all times & work area free from personal belongings.
- Ensure to use the power sockets above the workbench when using the machine.
- Ensure that all machinery is mounted securely and in from the edge of the work bench.

Checks & Inspections

- Regular maintenance inspections to be carried out in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

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 NeoView Ultra Violet Inspection Lamp	Ref: SWPS MEC 051 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

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

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

Mechanical
Entanglement of long hair with rotating UV cooling fan causing minor cuts and bruises.

Slips trips and falls
Poor housekeeping, personal belongings, trailing UV power cables can cause slipping and tripping fall impact head and body injuries.

Falling machinery and parts
Machine control unit not mounted properly on the workbench falls resulting in lower leg and feet impact injuries. Unsecure hold of machine when transporting or operating resulting in lower leg and feet impact injuries.

Physical
Short term exposure to UV lamps can result in blindness and severe burns to the skin. Chronic effects of UV exposure can result in carcinoma of the skin and cataracts of the eyes.

Temperature
Contact with the housing of the lamp can result in minor burns to he hands and fingers.

Chemicals
Inhalation of aerosols being sprayed on test materials can result in acute or chronic respiratory illness, wheezing and coughing. Skin exposed to aerosols being sprayed or holding test materials can result in acute or chronic minor skin irritation. Aerosols may cause irritation to the eyes if exposed to.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The machine is used to identify defects in metal materials.

Controls

- Students are permitted to operate the UV Lamp, under correct instruction and the lecturer or technician's supervision.
- Ensure that all electrical cables and plugs on the UV lamp are in good working order and free from damage or defects prior to use.
- Do not use equipment with damaged or defected electrical cable or plugs, remove from use for repair.
- Competent persons must carry out electrical repairs.
- Follow the manual handling training guidelines at all times.
- Long hair must be neatly tied back or a well fitted cap worn when operating the machine.
- Ensure that UV lamp fan guard is in place prior to operating the machine.
- Maintain good housekeeping at all times & work area free from personal belongings.

- Avoid the trailing of power cables by utilising the power sockets above or on the workbenches.
- Ensure that all machinery is mounted securely in from the edge of the work bench.
- Maintain a secure hold of the machine when transporting or operating.
- Never point the UV lamp directly into the eyes of one's self or bystanders or at exposed skin parts.
- Always use UV safety glasses when operating the lamp.
- Switch on the UV lamp when required.
- Operators of UV lamps must cover up all exposed skin parts where possible.
- Only point the UV lamp in the direction of the test piece material and away from bystanders.
- Students must stand behind the UV lamp when in use and never in between the lamp and test piece.
- Ensure that the room is well ventilated when operating the UV machine and spraying chemicals.
- Ensure that the cooling fan of the UV lamp is working prior to use.
- Wear safety gloves and glasses when handling test materials contaminated with chemical sprays.
- Sparingly apply chemical sprays on test material.
- Never try to smell or inhale aerosols.
- All safety gloves must be disposed of carefully when work is complete.
- Always follow good hygiene practice and wash hands thoroughly.

Checks & Inspections

- Regular maintenance inspections to be carried out in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- Manual Handling
- Chemical handling
- PPE training
- MSDS

Personal protective equipment required (last resort)

- Safety Boots
- UV approved safety glasses
- Safety 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

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Safe Work Practice Sheet TV, Video and DVD Players	Ref: SWPS MEC 052 Date: 21/072014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Electricity
Poorly fitted, maintained, damaged or loose electrical cables and plugs on Television, VHS or DVD Player could result in electrocution-death or first, second and or third degree burns.

Manual Handling
Pulling, pushing or lifting the machinery to and from storage can result in acute or chronic lower back and or musculoskeletal injuries.

Falling Equipment
Television not securely fixed to the top of the trolley, door way saddles or low ramps can cause equipment to fall when being moved resulting in lower leg and feet impact injuries.

Collapsing Trolley
Wheels on the trolley fail and collapse resulting feet impact injuries with trolley frame.

Slips trips and falls
Poor housekeeping, personal belongings, trailing power cables can cause slipping and tripping resulting in fall impact head and body injuries.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The machines are used as a teaching aid to display various VHS cassette and DVD engineering films.

Controls

- Students are not permitted to transport the equipment to the lab location.
- Ensure that all electrical cables and plugs on the TV, VHS and DVY players are in good working order prior to use.
- Do not use equipment if electrical cables or plugs are damaged or defected in any way.
- Competent persons must carry out electrical repairs.
- Follow the manual handling training guidelines at all times.
- Ensure TV, DVD & VCR is stored on the purpose built trolley for transporting to and from lab.
- Ensure that the TV is securely fixed to the top of the trolley when transporting.
- Inspect the wheels on the trolley prior to use, do not use if damaged in any way and remove from use for repair.
- Good housekeeping must be maintained at all times and lab free from personal belongings.
- Avoid the trailing of power cables. Place the back of the machines as near to the wall possible and use the wall sockets provided.
- When moving the trolley ensure that you slowly push or pull it over any doorway saddle or low lab ramp. Seek assistance if required.

Checks & Inspections

- Regular maintenance inspections to be carried out in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

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 Torsion Testing Machine	Ref: SWPS MEC 053 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Manual Handling
Pulling or pushing the machine along or to and from the workbench can result in acute or chronic lower back and or musculoskeletal injuries.

Mechanical
Crushing of fingers when adjusting and sliding machine chuck. Entanglement of long hair of loose clothing resulting in minor injuries.

Falling Machine
Moving the machine along or to another workbench, machine placed at the edge of the workbench can result in a falling machine and cause severe crushing and impact injuries to the lower legs and feet.

Slips trips and falls
Poor housekeeping, personal belongings, cleaning fluids can cause slipping and tripping resulting in fall impact head and body injuries.

Chemicals
Lubricating the ridged box with Tribol lubricant can result in acute minor skin irritation to the hands and fingers, irritation to the lungs if inhaled, irritation to the eyes.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The machine is used to demonstrate the validity of the elastic torsion equation of over strained materials.

Controls

- Lecturers and technicians are only permitted to set up the machine on the workbench.
- Follow the manual handling training guidelines at all times when moving the machine.
- Students are permitted to operate the machine, under correct instruction and the lecturer or technician's supervision.
- Do not place fingers or hands in between sliding chuck when moving into position.
- Loose clothing must not be worn when operating the machine.
- Long hair must be neatly tied back or a well fitted cap worn.
- Incrementally move the machine when sliding along the workbench and keep as far away from the edge of the workbench.
- Seek assistance when moving the machine to another workbench.
- Ensure that the machine is always placed in from the edge of the workbench.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Clean up any cleaning liquids from the floor immediately.
- Ensure that the room is well ventilated when applying Tribo aerosol lubricant and apply sparingly.
- Wear gloves when handling Tribo lubricant.
- Follow good hygiene practice at all times and wash hands when finished handling Tribo lubricant.

Checks & Inspections

- Regular maintenance inspections to be carried out in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- Manual Handling
- Chemical Handling training
- MSDS

Personal protective equipment required (last resort)

- Safety Boots
- Safety Gloves

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 Universal Vibration Apparatus	Ref: SWPS MEC 054 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Manual Handling
Pulling, pushing or moving the machine into the required test area, Lifting weights onto and off the machine can result in acute or chronic lower back and or musculoskeletal injuries.

Mechanical
Pinching of skin on hands and fingers if holding the coiled spring when loading and unloading weights. Crushing of fingers if in between the ascending or descending apparatus beam support when load being applied or removed. Pinching of fingers when removing or adding various test equipment.

Falling Weights
Weights not placed securely on the machine weight hanger, unsecure hold of weight being applied to the machine, weights stored on the edge of the apparatus work top can fall causing lower leg and feet impact and crush injuries.

Collapsing Apparatus
Wheels of the apparatus are damaged and fail resulting in the apparatus collapsing to the ground causing crush injuries to the feet.

Slips trips and falls
Poor housekeeping, personal belongings, glycerol oil can cause slipping and tripping resulting in fall impact head and body injuries.

Chemicals
Handling of glycerol with bare hands from contaminated test equipment, accidental spillage may result minor skin irritation.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The machine is used to establish the parameters for a damped mechanical vibration system.

Controls

- Students are permitted to operate the machine, under correct instruction and the lecturer or technician's supervision.
- Follow the manual handling training guidelines at all times.
- Ensure that the trolley wheels are in good working order.
- Never touch or hold the apparatus coiled spring when loading or unloading weights.
- Never fingers in between the beam support when loading or unloading weights.
- Never place fingers in between moving parts of clamps.
- When placing weights on to the apparatus ensure that they are placed at right angles to each other.
- Maintain a secure hold of weights when carrying or holding.

- Never place weights on the edge of the apparatus work top.
- Adjust the apparatus leg support to the ground when in storage or in required test position.
- Adjust the leg support slightly above the ground when moving the apparatus.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Clean up any spilled glycerol oil from the floor immediately.
- Use safety gloves if handling equipment contaminated with glycerol or cleaning an accidental spillage.
- Wash any contaminated skin immediately after contact with glycerol.
- Follow good hygiene practice at all times.
- Wash hands thoroughly after handling glycerol.

Checks & Inspections

- Regular maintenance inspections to be carried out in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- Manual Handling
- Chemical handling training.
- MSDS for Glycerol.

Personal protective equipment required (last resort)

- Safety Boots
- Safety gloves

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 MEC 055
	Date: 21/07/2014
Flat and V Belt Apparatus	Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Manual Handling
Lifting of weights to and from the apparatus can result in acute or chronic lower back and or musculoskeletal injuries.

Falling apparatus
Apparatus not secured to the wall, loose bolts & nuts resulting in a falling apparatus and lower leg and feet crush and impact injuries.

Mechanical
Entanglement of loose clothing, long hair, jewellery with manually operated drive wheel resulting in minor neck injuries and bruising.

Falling Weights
Weights placed incorrectly onto the apparatus weight hanger, unsecure hold of weight being applied to the apparatus, failed flat or v belt or spring balance, over loading of weights can result in falling weights causing lower leg and feet impact injuries.

Slips trips and falls
Poor housekeeping, personal belongings, weights on the ground can cause slipping and tripping resulting in fall impact head and body injuries.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The apparatus is used in determining the coefficient friction and maximum power transmission capacity of a flat and V belt and Pulley.

Controls

- Students are permitted to use the apparatus, under correct instruction and the lecturer or technician's supervision. .
- Follow the manual handling training guidelines at all times when lifting weights.
- Ensure that the apparatus is fix bolted and tightened securely to the wall.
- Check for any loose nuts prior to using the apparatus.
- Loose clothing and jewellery must not be worn when operating the machine.
- Long hair must be neatly tied back or a well fitted cap worn.
- Ensure to place weights at right angles to each other when loading the weight hanger.
- Maintain a secure hold of weights when loading the apparatus.
- Inspect the spring balance, flat and v belt for any damage or defects prior to use, do not use if damaged or defected in any way and hand to lecturer or technician for removal and replacement.
- Never overload the apparatus with weights.
- Follow the manufacturer's operating and testing guidelines at all times.

- Maintain good housekeeping and work area from personal belongings at all times.
- Weights must not be stored on the ground around the apparatus and returned to workbench storage after use.

Checks & Inspections

- Regular maintenance inspections to be carried out in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- Manual Handling

Personal protective equipment required (last resort)

- Safety Boots

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

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Safe Work Practice Sheet Worm & Gear Wheel Apparatus	Ref: SWPS MEC 056 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Manual Handling
Lifting of weights to and from the apparatus can result in acute or chronic lower back and or musculoskeletal injuries.

Falling apparatus
Apparatus not secured to the wall, loose bolts & nuts resulting in a falling apparatus and lower leg and feet crush and impact injuries.

Mechanical
Entanglement of loose clothing, long hair, and jewellery with rotating worm screw and cog wheel resulting in minor neck injuries and bruising. Crushing and pinching of fingers with rotating worm screw and cog wheel and rotating cog wheel and worm wheel holding brackets,

Falling Weights
Weights placed incorrectly onto the apparatus weight hanger, unsecure hold of weight being applied to the apparatus, failed string for holding weights, over loading of weights can result in falling weights causing lower leg and feet impact injuries.

Slips trips and falls
Poor housekeeping, personal belongings, weights on the ground can cause slipping and tripping resulting in fall impact head and body injuries.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The apparatus is used to find the velocity ratio, mechanical advantage and efficiencies or a worm and gear wheel.

Controls

- Students are permitted to use the apparatus, under correct instruction and the lecturer or technicians supervision.
- Follow the manual handling training guidelines at all times when lifting weights.
- Ensure that the apparatus is fix bolted and tightened securely to the wall.
- Check for any loose nuts prior to using the apparatus.
- Loose clothing and jewellery must not be worn when operating the machine.
- Long hair must be neatly tied back or a well fitted cap worn.
- Do not touch the apparatus worm or gear wheel or holding brackets when loading with weights.
- Ensure to place weights at right angles to each other when loading the weight hanger.
- Maintain a secure hold of weights when loading the apparatus.
- Inspect the string for holding weights for damage or defects prior to use, do not use if damaged or defected in any way and hand to lecturer or technician for removal and replacement.
- Never overload the apparatus with weights.

- Follow the apparatus manufacturer's operating and testing guidelines at all times.
- Maintain good housekeeping and work area from personal belongings at all times.
- Weights must not be stored on the ground around the apparatus.
- Return weights to workbench storage after use.

Checks & Inspections

- Regular maintenance inspections to be carried out in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- Manual Handling

Personal protective equipment required (last resort)

- Safety Boots

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

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Safe Work Practice Sheet Fly Wheel Apparatus	Ref: SWPS MEC 057 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Manual Handling
Lifting of weights to and from the apparatus removing and replacing the apparatus to and from the wall can result in acute or chronic lower back and or musculoskeletal injuries.

Falling apparatus
Apparatus not secured to the wall, loose bolts & nuts, removing and replacing the apparatus to and from the wall resulting in a falling apparatus and lower leg and feet crush and impact injuries.

Falling Weights
Weights not tied securely onto string, unsecure hold of weight being applied to the apparatus, failed string for holding weights, string over loaded with weights can result in falling weights causing lower leg and feet impact and crush injuries.

Slips trips and falls
Poor housekeeping, personal belongings, weights on the ground can cause slipping and tripping resulting in fall impact head and body injuries.

Mounted Object
The apparatus fixed onto wall may be walked into resulting head and body impact injuries.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The apparatus is used to determine the movement of inertia of a fly wheel.

Controls

- Students are permitted to use the apparatus, under correct instruction and the lecturer or technicians supervision.
- Follow the manual handling training guidelines at all times when lifting weights.
- Ensure that the apparatus is fix bolted and tightened securely to the wall.
- Check for any loose nuts prior to using the apparatus.
- Loose clothing and jewellery must not be worn when operating the machine.
- Long hair must be neatly tied back or a well fitted cap worn.
- Ensure to tie the weight securely onto the string and apparatus.
- Maintain a secure hold of weights when loading the apparatus.
- Inspect the string for damage or defects prior to use, do not use if damaged or defected in any way and hand to lecturer or technician for removal and replacement.
- Never overload the string with weights.
- Follow the apparatus manufacturer's operating and testing guidelines at all times.
- Maintain good housekeeping and work area from personal belongings at all times.

- Weights must not be stored on the ground around the apparatus and returned to workbench storage after use.

Recommendation

- The apparatus should be set up in a different area of the lab so as to prevent students and employees from inadvertently walking into the apparatus. The new location would also allow for permanent fixing of the apparatus to the wall, reducing the manual handling of the apparatus.

Checks & Inspections

- Regular maintenance inspections to be carried out in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- Manual Handling

Personal protective equipment required (last resort)

- Safety Boots

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

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Safe Work Practice Sheet Strut Testing Apparatus	Ref: SWPS MEC 058 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

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

Manual Handling
Lifting, carrying, pulling and pushing the machine to and from the workbench can result in acute or chronic lower back and or musculoskeletal injuries.

Slips trips and falls
Poor housekeeping, personal belongings, apparatus trailing power cable, metal struts lying on the ground can cause slipping and tripping resulting in fall impact head and body injuries.

Falling apparatus
Unsecure hold of the apparatus when moving, apparatus placed at the edge of the workbench can result in a falling apparatus and lower leg and feet crush and impact injuries.

Flying Missile
Overloading of the metal strut can result in the strut fatiguing and snapping in two and causing flying metal fragments resulting in loss of sight.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The apparatus is used to determine the critical buckling load of metal struts.

Controls

- Students are permitted to use the apparatus, under correct instruction and the lecturer or technicians supervision.
- Inspect the apparatus electrical power cable and plug prior to using the machine.
- Do not use the machine if the electrical cable or plug is damaged or defected in any way and remove from use for repair or replacement.
- Competent person/s must carry out electrical repairs.
- Follow the manual handling training guidelines at all times when moving the machine.
- Seek assistance when required to move the apparatus from one bench to another.
- Maintain good housekeeping and work area from personal belongings at all times.
- Ensure that the apparatus is plugged in to the sockets on the wall above or on the workbench.
- Never place or leave metal struts lying on the floor.
- Ensure that the machine is placed in from the edge of the work bench when setting up and using.

- Maintain a secure hold of the apparatus when transporting to and from storage.
- Wear safety glasses when operating the apparatus.
- Lecturer must determine safe distance for observing students.
- Ensure that the apparatus is used in accordance with the manufacturers operating procedures.

Checks & Inspections

- Regular maintenance inspections to be carried out in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- Manual Handling

Personal protective equipment required (last resort)

- Safety Boots
- 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

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Safe Work Practice Sheet Thin Cylinder Apparatus	Ref: SWPS MEC 059 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

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

Manual Handling
Lifting, carrying, pulling and pushing the apparatus or strain gauge monitor to and from storage can result in acute or chronic lower back and or musculoskeletal injuries.

Slips trips and falls
Poor housekeeping, personal belongings, apparatus trailing power cable, lying on the ground, leaking hydraulic oil can cause slipping and tripping resulting in fall impact head and body injuries.

Falling apparatus
Unsecure hold of the apparatus when moving, apparatus placed at the edge of the workbench can result in a falling apparatus and lower leg and feet crush and impact injuries

Hydraulic
Leaking hydraulic oil can result in minor skin irritation, leaking hydraulic oil under pressure can result in loss of sight or eye irritation.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The apparatus is used to determine the stresses in an internally pressurised thin wall cylinder.

Controls

- Students are permitted to use the apparatus, under correct instruction and the lecturer or technicians supervision.
- Inspect the apparatus electrical power cable and plug prior to using the machine.
- Do not use the machine if the electrical cable or plug is damaged or defected in any way and remove from use for repair or replacement.
- Competent person/s must carry out electrical repairs.
- Follow the manual handling training guidelines at all times when moving the machine.
- Seek assistance if required to move the apparatus and strain gauge monitor to and from storage.
- Maintain good housekeeping, and work area from personal belongings at all times.
- Ensure that the apparatus is plugged in to the sockets on the wall above or on the workbench.
- Ensure that the machine is placed in from the edge of the work bench when setting up and using.

- Maintain a secure hold of the apparatus when transporting to and from storage.
- Ensure that the apparatus is free from leaking oil prior to using. Do not use if leaking oil.
- Ensure that the machine guards (Perspex windows) & housing are in place when operating the device.
- The apparatus must be used in accordance with the manufacturers operating procedures.

Checks & Inspections

- Regular maintenance inspections to be carried out in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- Manual Handling

Personal protective equipment required (last resort)

- Safety Boots
- 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

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Safe Work Practice Sheet Strain Indicators Gauges	Ref: SWPS MEC 060 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

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

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

Falling apparatus
Unsecure hold of the apparatus when moving, apparatus placed at the edge of the workbench, damaged carrying handles on gauges can fall and result in minor lower leg and feet and impact injuries

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The gauges are used to find by experiment the principal strain and stress values on a stressed material.

Controls

- Students are permitted to use the apparatus, under correct instruction and the lecturer or technicians supervision.
- Follow the manual handling training guidelines at all times when moving the machine.
- Maintain good housekeeping, and work area from personal belongings at all times.
- Ensure that the apparatus is placed in from the edge of the work bench when setting up and using.
- Inspect the handle on the gauges for damage or defects prior to use.
- Maintain a secure hold of the apparatus when transporting to and from storage.
- The apparatus must be used in accordance with the manufacturers operating procedures.

Checks & Inspections

- Regular maintenance inspections to be carried out in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- Manual Handling

Personal protective equipment required (last resort)

- Safety Boots

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

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Safe Work Practice Sheet Force Boards	Ref: SWPS MEC 061 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Manual Handling
Lifting and carrying, the apparatus and weights to and from storage can result in acute or chronic lower back and or musculoskeletal injuries.

Slips trips and falls
Poor housekeeping and personal belongings, weights lying on the ground, can result in slipping and tripping causing fall impact head and body injuries.

Falling apparatus / weights
Unsecure hold of the apparatus when moving, apparatus placed at the edge of the workbench, damaged spring balance or weight cord can cause apparatus weights to fall and result in minor lower leg and feet impact injuries.

Sharps
Minor cuts to hands and fingers from handling metal lamina boards.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The apparatus is used to measure reactions of two support points, and for exploring vectors..

Controls

- Students are permitted to use the apparatus, under correct instruction and the lecturer or technicians supervision.
- Follow the manual handling training guidelines at all times when moving the machine.
- Maintain good housekeeping, and work area from personal belongings at all times.
- Weights must not be stored on the ground around the test area when using the apparatus.
- Ensure that the apparatus is placed in from the edge of the work bench when setting up and using.
- Inspect the cord on the apparatus for damage or defects prior to use. Does not use cord if damaged in any way and replace with a new one.
- Maintain a secure hold of the apparatus and weights when transporting to and from storage.
- The apparatus must be used in accordance with the manufacturers operating procedures.
- Inspect lamina boards for sharps prior to use.

Checks & Inspections

- Regular maintenance inspections to be carried out in accordance with manufacturer's

recommendations. Records kept by the School.

- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- Manual Handling

Personal protective equipment required (last resort)

- Safety Boots

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

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Safe Work Practice Sheet Linear Air Track	Ref: SWPS MEC 062 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Electricity
Poorly maintained, damaged or defected air blower, electrical digital timer electrical cable or plug can result in electrocution-death or first, second and or third degree burns.

Manual Handling
Lifting, carrying and setting up the apparatus on the workbench, returning apparatus to storage can result in acute or chronic lower back and or musculoskeletal injuries.

Slips trips and falls
Poor housekeeping and personal belongings, weights lying on the ground, trailing electrical cables can result in slipping and tripping causing fall impact head and body injuries.

Falling apparatus / equipment
Unsecure hold of the apparatus and equipment when moving to and from storage, apparatus and equipment placed too close to the workbench edge can fall and result in minor lower leg and feet impact injuries, clamp on retort stand not tightened can slide on shaft, resulting in minor finger impact crush injuries.

Dust
Dust lying on the apparatus slide track or in the apparatus can be blown into the operators eyes causing minor acute eye irritation or acute respiratory illness.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The apparatus is used to determine the velocity and acceleration of a body subjected to a constant accelerating force.

Controls

- Only the lecturer or technician is permitted to set up the apparatus.
- Students are permitted to use the apparatus, under correct instruction and the lecturer or technicians supervision.
- Ensure that all electrical cable, plugs and sockets are in good working order prior to using the electrical equipment.
- Do not use electrical equipment if damaged or defected in any way, report to the lecturer or technician for removal from use and repair.
- All electrical repairs must be carried out by a competent person/s.
- Follow the manual handling training guidelines at all times when moving the apparatus to and from storage.

- Apparatus parts or weights must not be left lying on or stored on the ground.
- Maintain good housekeeping and work area free from personal belongings at all times.
- All electrical power cables must be connected into the sockets mounted on the workbench.
- Use both hands to maintain a secure hold of apparatus & equipment when moving to & from storage.
- Ensure that the apparatus and equipment is setup and maintained in from the workbench edge.
- Ensure that the clamp on the retort stand is clamped tightly.
- Dust down the apparatus slide track with a damp cloth prior to use.
- Cover up both ends of the apparatus slide track when it is not in use.
- Always use the apparatus and equipment as intended by the manufacturer.

Checks & Inspections

- Regular maintenance inspections to be carried out in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

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 Rolling Disk Apparatus	Ref: SWPS MEC 063 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Manual Handling
Lifting, carrying and setting up the apparatus and disc wheel on the workbench, returning apparatus to storage can result in acute or chronic lower back and or musculoskeletal injuries.

Slips trips and falls
Poor housekeeping and personal belongings, apparatus parts lying on the ground can result in slipping and tripping causing fall impact head and body injuries.

Falling apparatus / equipment
Unsecure hold of the apparatus and equipment when moving to and from storage, apparatus and equipment placed too close to the workbench edge can fall and result in minor lower leg and feet impact injuries.

Rotating Disc Wheel
Minor impact crush injury to fingers if in between rotating disc wheel and apparatus frame.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The apparatus is used to determine and compare the moment of inertia of a disc.

Controls

- Only the lecturer or technician is permitted to set up the apparatus.
- Students are permitted to use the apparatus, under correct instruction and the lecturer or technicians supervision.
- Follow the manual handling training guidelines at all times when moving the apparatus to and from storage.
- Apparatus parts or weights must not be left lying on or stored on the ground.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Use both hands to maintain a secure hold of apparatus & equipment when moving to & from storage.
- Ensure that the apparatus and equipment is setup correctly and maintained in from the workbench edge.
- Never place or rest fingers in between the rolling disc wheel and apparatus frame.
- Always use the apparatus as intended by the manufacturer.

Checks & Inspections

- Regular maintenance inspections to be carried out in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

- Manual Handling

Personal protective equipment required (last resort)

- Safety Boots

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

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Safe Work Practice Sheet Leapfrog 3D Printer	Ref: SWPS MEC 077 Date: 21/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

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

Mechanical
Entanglement of long hair or loose clothing with rotating belt pulleys causing minor injuries, Minor hand crush injuries with descending base plate.

Thermal
Glass base plate, extruder head, forming and formed material can result in burns to the hands and fingers.

Manual Handling
Pushing, pulling, lifting or carrying the printer onto the workbench can result in acute or chronic lower back and or musculoskeletal injuries.

Slips Trips and Falls
Poor housekeeping, personal belongings, trailing cables and pieces of plastic lying on the ground can result in slipping and tripping causing fall impact head and body injuries.

Falling Machine
Carrying the machine, machine placed on the work bench edge or trolley can fall and result in major impact injuries to the lower legs and feet.

Falling Trolley
The trolley being used to transport the machine is damaged and results in the trolley falling over and causing lower leg and feet impact injuries.

Sharps
Holding and removing moulded materials with external sharps, using a metal sharp edge to remove / pry materials from the glass plate can result in lacerations or puncture wounds to the hands and fingers.

Flying debris
Metal blade used to remove mould from base plate breaks and fly's resulting in the loss of sight.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The machine is used for making plastic components.

Controls

- Students are permitted to use the machine, under correct instruction and the lecturer or technicians supervision.
- Ensure that all electrical cables, plugs and sockets are in good working order prior to using the equipment.
- Do not use electrical equipment if damaged or defected in any way, report to the lecturer or technician for removal from use and repair.
- All electrical repairs must be carried out by a competent person/s.
- Long hair must be neatly tied back when operating the machine.
- Loose clothing must not be worn when operating the machine.
- Never place hands or finger into the machine when it is running.
- Never leave the machine running unattended.
- Always use the machine as per manufacturer's standard operating procedures.
- Allow for machine parts and moulded materials to adequately cool prior to handling, wear gloves if required
- Follow the manual handling training guidelines at all times.
- Seek assistance when required to move the machine.
- Always use a trolley for transportation.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Avoid the trailing of power cables on the lab walkway.
- Immediately clean up any plastic lying on the ground.
- Ensure that the machine is placed in from the work bench and trolley edge if being transported.
- Ensure that there is adequate ventilation when running the machine.
- Inspect the trolley and wheels for damage or defects prior to use, do not use if damaged or defected in any way and remove from use for repair.
- Never hold a metal blade by the sharp edge.
- Avoid the use of metal blades with sharp edges. Ensure that the metal blades are free from damage or defects prior to use.
- Exercise caution when handling moulded parts, where possible file smooth any sharps.
- Wear safety glasses when operating the machine.
- Ensure there is adequate ventilation when operating the machine

Checks & Inspections

- Regular maintenance inspections to be carried out in accordance with manufacturer's recommendations. Records kept by the School.
- Lecturers and technicians to monitor compliance with control measures

Information, Instruction & Training

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

Personal protective equipment required (last resort)

- Safety Boots

- Safety Glasses
- Heat Resistant 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

As and when process changes or yearly

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Safe Work Practice Sheet Corded and Cordless Hand Held Drills	Ref: SWPS MEC 081 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 not permitted use of the equipment.
- 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

Risk Assessment Review

As and when process changes or yearly

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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 9396510	Plumbing Workshop	042

- 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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