OCCUPATIONAL, HEALTH AND SAFETY INDUCTION

Melbourne School of Engineering
(RP & IP Students)
Induction Topics

- Responsibilities – Legal, University, Engineering
- Information
- Personal Protective Equipment (PPE)
- Emergency Procedures
- First Aid
- Incident Reporting
- Security
- Office/Lab Safety
Safety Responsibilities – Legal, University & Engineering

Responsibility to Students

• In Victoria, the **OHS Act 2004** requires that the University provide students with a safe learning place, within *reasonable & practicable* circumstances.

• The University **OHS Manual** states that Academic Supervisors have a *duty of care* towards their students.

• The **School of Engineering** is committed to providing Students with a safe and healthy working environment.

Responsibilities of Students

The same legislation, procedures and standards requires students to co-operate with the University & its employees to achieve a safe learning place and to take *reasonable* care of their own (*& other peoples*) safety.
Environment Responsibilities – Legal, University & Engineering

Victorian Environment Protection Act 1970
Requires employers, staff & students to work in a manner that will;
• Reduce negative impact on the environment
• Improve environmental performance (e.g.: carbon footprint targets, water reduction targets, recycling programs)
Basically, don’t make a target of yourself by working unsafely or allowing others to work unsafely around you!
Information - Visual

Safety & environment information is also distributed via:

• Notice boards
• Posters
• Signs/Symbols
• Labels
• Emails
• Safe Work Procedures/Instructions
• Training Programs (like this one)
Information - People

Your fellow lab users and your academic supervisor are a wealth of knowledge, both academically and in safety.

If you don’t know – ask someone who probably does.

You are working with a lab group who are the subject matter experts in their field. Tap into their knowledge.

If you come to the OHS Unit without having first talked to your supervisor, we will send you back.
Information – OHS Specialists

School of Engineering OHS Team contacts:
E: mse-ohs@unimelb.edu.au
P: 834 42400

Services - Provide advice and assistance to help you comply with your safety & environmental responsibilities.

University OHS webpage:
http://safety.unimelb.edu.au/
Consequences of working unsafely / OHS Discipline Procedures

**Worst case scenario = death.**

To prevent a worst case scenario, Supervisors will be enforcing local safety rules. OHS Discipline Procedure launched 2\textsuperscript{nd} March 2009. Copy on LMS if you wish to view the complete document.

If you disobey or ignore local safety rules you will be removed from ALL labs for;

•(1\textsuperscript{st} Offence) 2 working days
•(2\textsuperscript{nd} Offence) 10 working days
•(3\textsuperscript{rd} Offence) Indefinitely until you prove to OHS Manager, your Supervisor and your HoD that you can and will work safely.
There is no such thing as a silly question; only silly mistakes

Basically, if you are in doubt, ask somebody.

Safety is one area where you do not want to learn from your own mistakes.
Chemical Safety
Material Safety Data Sheets (MSDS’s)

• MSDS’s are documents that contain extremely important information relating to the potential health effects of exposure to chemicals/substance and guidelines of safe work practices to follow when working with chemicals/substances.

• MSDS’s can be accessed electronically via GoldFFX: http://safety.unimelb.edu.au/hazard-topics/chemical-management

• Always read the MSDS of any chemical you are to use so you know how to be safe and how to protect yourself from injury or illness.

• Not sure how to access or read a MSDS? Ask your supervisor or senior students in your area.
General Laboratory Rules

- Do follow any reasonable safety direction of a Supervisor or other University Staff member.
- Do follow any “Lab Safety Rules” posted at entry points – it’s not to make you look silly but keep you safe and healthy.
- Do treat all chemicals as if they are dangerous.
- Do consult MSDS’s for chemicals you have not used before or unfamiliar with.
- Don’t wear lab coats & gloves outside of the lab – stops transfer of hazards.
- Don’t put yourself in danger.
- Don’t let others put you in danger.
- Don’t use equipment you are not familiar with, ask for help or training – remember there is no such thing as a silly question, only silly mistakes.
- Don’t take ANY equipment of chemicals home unless with the express permission of your (or Lab) Supervisor!
Make sure you have completed your Risk Assessments, Standard Operating Procedures etc. before beginning your projects.

**Risk Management**

- Risk management is the identification, assessment and prioritisation of risks followed by coordination and economical application of resources to minimise, monitor and control the probability and/or impact of unfortunate events.
- Seek input to your risk assessment from people who know more than you do.
- Your lab staff/senior students have a wealth of knowledge that can assist you in understanding the risks of your project and how those risks can be avoided or controlled.
4 Principles of Risk Management

1. **Hazard** Identification – what could potentially hurt me or the environment?

2. **Risk** Assessment – to what degree could the **Hazard** cause harm (Consequence vs Likelihood vs Exposure)?

3. **Control of Risks** – what is in place to eliminate or reduce a **Risk**?
   Use the hierarchy of controls to determine best risk mitigation methods

4. **Review** the Risk Controls to make sure they are working and workable.
Elimination Controls

UH... DO YOU MIND IF I SIMULATE THIS FIRST?
Substitution Controls

Replace an unhealthy substance with a healthier one (where possible)

Non-human trials?
Isolation Controls

- Lock-out / Tag out (LOTO)
- Isolation using barriers
- Isolation using distance
Engineering Controls

Why carry when you can use a trolley?

Guarding around hazards

Interlocks

Lifting devices
Administrative Controls

- Procedures
- OHS Training
- Hazard warning signs
PPE Controls

The unfortunate thing about PPE is it still requires us to get close to the hazard.

Using the scenario of a Bomb Squad Technician, what would you prefer to use – the suit (PPE) or the robot (Engineering + Isolation)? Or all three??

What would you consider to be safer?
Personal Protective Equipment (PPE)

• In certain locations in Engineering, we encounter hazards in our working environment.
• As a measure to control these hazards, it is a requirement that PPE is worn in some areas of the workplace.

Some of the hazards that can be controlled by the use of PPE are:
• Hot or cold areas and equipment
• Chemicals, e.g. Corrosives and Hazardous Substances
• Biological Materials, e.g. Bacteria and viruses
• Airborne Particles, e.g. Dusts and fumes
• Radiation, e.g. Ionising and Infra Red
• Noise
Personal Protective Equipment (PPE)

- Signage indicates what type of PPE must be worn when entering a laboratory or workshop.
- White on blue signs (as below) indicate that it is mandatory to wear the applicable PPE beyond that point – the only time this is not mandatory is if the signs states so.

<table>
<thead>
<tr>
<th>Signage</th>
<th>PPE required</th>
<th>Signage</th>
<th>PPE required</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Safety Glasses" /></td>
<td>Wear Safety Glasses</td>
<td><img src="image" alt="Face Shield" /></td>
<td>Wear Face Shield</td>
</tr>
<tr>
<td><img src="image" alt="Safety Goggles" /></td>
<td>Wear Safety Goggles</td>
<td><img src="image" alt="Hearing Protection" /></td>
<td>Wear Hearing Protection</td>
</tr>
<tr>
<td><img src="image" alt="Dust Mask" /></td>
<td>Wear Dust Mask</td>
<td><img src="image" alt="Eye and Hearing Protection" /></td>
<td>Wear Eye and Hearing Protection</td>
</tr>
<tr>
<td><img src="image" alt="Full Face Respirator" /></td>
<td>Wear Full Face Respirator</td>
<td><img src="image" alt="Gloves" /></td>
<td>Wear Gloves</td>
</tr>
<tr>
<td><img src="image" alt="Half Face Respirator" /></td>
<td>Wear Half Face Respirator</td>
<td><img src="image" alt="Enclosed Shoes" /></td>
<td>Wear Enclosed Shoes</td>
</tr>
</tbody>
</table>
You MUST obey these directions at ALL times in the Lab.
Personal Protective Equipment (PPE)

Lab Coats

• In most Laboratories and some Workshops wearing a Lab Coat is a requirement.

• Lab Coats are designed as a single layer of instant protection, generally from chemical splashes, for both your skin and your own clothing.

• Lab Coats should be washed regularly – ask your Lab Supervisor how this is achieved. Do not take home to wash it.

• You should not wear your Lab Coat in public areas or to the tea or rest rooms to prevent contamination of non-chemical areas.
If you wear PPE in an area, don’t let others enter without the same PPE.

If you see people wearing PPE in an area, follow their example.
Personal Protective Equipment (PPE)

Gloves

- Gloves provide protection for your hands whilst working with or being exposed to chemicals and hazards associated with some equipment and/or machinery.

- Different types of gloves are used for handling different substances.

- It is important to wear the correct glove for the product that you are handling to protect yourself – the MSDS provides chemical handling information including type of gloves to use.

- Never wear gloves outside a Laboratory as you may contaminate items such as door handles and/or contaminate your gloves.
Personal Protective Equipment (PPE)

Footwear

- Enclosed Footwear must be worn in Laboratories and Workshops.

- Enclosed means that the foot is covered to the ankle - Open backed shoes are not acceptable.

- This is to protect the feet from chemical splashes and/or stepping on harmful materials.

- Entering certain Workshops or using some types of equipment/machinery may require you to wear more protective forms of footwear such as Steel Capped Safety Boots/Shoes.
Under NO circumstance should you modify PPE!
Personal Protective Equipment (PPE)

Safety Glasses and Goggles

• One of the main types of injury that can occur in a Laboratory or Workshop is a splash or projectile to the eye/s.

• Safety Glasses provide protection from chemical splashes, particulates and projectiles.

• Safety Goggles form a seal around the eyes and provide protection from chemical fumes.

• When handling liquid and aerosol substances, general prescription glasses do not provide enough protection, therefore, Safety Glasses or Goggles MUST be worn whenever dealing with liquids or aerosols.

• Safety Eyewear MUST be worn AT ALL TIMES in designated areas.
Safety Glasses Save Eyes!
Personal Protective Equipment (PPE)

• Basic P1 Masks are disposable and provide protection when working with fumes and dusts

• Filter P2 Masks provide more protection than P1 Masks and provide protection when working with hot fumes and chemicals

• Specific Filter P2/3 Masks provide protection when working with certain chemicals

• Ensure Masks fit correctly!
Personal Protective Equipment (PPE)

**Ear Plugs and Ear Muffs**

- Some equipment and/or machinery can produce a high sound pressure level (some people call it ‘Noise’).

- To protect your ears from the danger of hearing loss due to working around or with noisy equipment, Ear Plugs and/or Ear Muffs should be worn.

- If you need assistance in selecting the most appropriate hearing protection, or any other PPE, for your needs, please contact the Engineering OHS Unit.
Personal Protective Equipment (PPE)

How to obtain PPE

- Basic PPE for Research Project purposes may be supplied by your Academic Supervisor – but it cannot leave the lab.

- Basic personal PPE can be purchased from the Chemistry Store.

- Good brand and excellent quality PPE for your personal use can be purchased from any reputable Safety Product Provider.

- The OHS Unit strongly suggest you purchase a pair of your own Safety Glasses.
On-line Hazard Based Training

To give you the skills you need to work safely, or to check that you are competent with current skills, your Supervisor may require you to conduct extra OHS training.

Ask your supervisor if you should have an “Hazard Based Training” in order to undertake your work safely.
Emergency Procedures

Fire/Evacuation Alarms

May sound like;
• a continuous ringing bell, or
• an electronic siren, or
• an electronic whoop-whoop sound

If you hear any of these sounds, prepare to evacuate the building in a calm and orderly manner.
If you are required to evacuate, follow directions of Supervisors or Emergency Personnel.
Emergency Equipment

Break Glass Alarm

Used to activate the emergency/evacuation alarm in the case of fire, gas leak or other emergency event.

Don’t tamper with unless in an emergency.
Emergency Equipment

Fire Extinguishers

Water Extinguisher  
(All Red in colour) 
For paper/wood fires

Foam Extinguisher  
(Blue band) 
For liquid fires

CO2 Extinguisher  
(Black band) 
For electrical fires

Dry Chemical Extinguisher  
(White band) 
For all fires
First Aid

People
Every building has volunteer staff that are qualified in basic First Aid and re-train every three years. The names and contact details of local first aid staff can be found on notice boards and signs throughout each building. Security Guards are also qualified in First Aid.

Provisions
First Aid kits are located in every building and depending on the level of local risk, often multiple kits are located on each floor.
Incident Reporting

If injured, first and foremost is to seek First Aid.

If you are injured or experience a “near miss” while at Uni you MUST report the incident to your supervisor – it’s law!

You MUST complete an Incident Report via the Enterprise Risk Management System (ERMS) once you have discussed the incident with your supervisor.

**ERMS**
https://www.riskcloud.net/prod/?ccode=uom
Faulty Equipment

If you discover equipment is faulty – tag or clearly mark it as faulty and report the fault to your supervisor.

Disconnect mains power (if appropriate and safe to do so).

Do not use items tagged or marked as faulty.

Never remove a tag or label from faulty equipment unless directed to by authorised repairer.

There are in-house processes for getting faulty equipment repaired.
After-Hours Work

- Work outside of 7:00 am & 7:00 pm
- In 99.9% cases RP students are NOT allowed to work in labs afterhours.
- Permission is to be sought from Lab Academic Supervisor and Head of Department.
- Be aware of local procedures – locked areas etc.
- Carry your Identification Card
- No High Risk activities to be undertaken
- Know the number for Security / Emergency (46666)
THANK YOU FOR YOUR PARTICIPATION

ANY QUESTIONS?