School of Electrical, Electronic and Computer Engineering

SAFETY AND HEALTH MANUAL
Emergencies

24 hours Assistance for all Emergencies

**Ext 2222**

**Emergency assembly area**

For the School of Electrical, Electronic, and Computer Engineering, the emergency assembly area is in the Math's courtyard, outside the Mathematics & Physical Sciences Library.

**Doctor**

(Medical Centre) 6488 2118

**First Aid Officers**

<table>
<thead>
<tr>
<th>Name</th>
<th>Ext</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jonathon Brant</td>
<td>3462</td>
<td>G03</td>
</tr>
<tr>
<td>Tim Rosenow</td>
<td>3110</td>
<td>G70</td>
</tr>
<tr>
<td>Georgia Wachmer</td>
<td>7252</td>
<td>1.24 (WATRI building)</td>
</tr>
</tbody>
</table>

**School Safety Officers**

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Ext</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Safety Officer</td>
<td>John Schurmann</td>
<td>1331</td>
<td></td>
</tr>
<tr>
<td>School Chemical Safety Officer</td>
<td>John Dell</td>
<td>3112</td>
<td></td>
</tr>
<tr>
<td>School Radiation Officer</td>
<td>TBA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Laser Safety Officer</td>
<td>TBA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Biological Safety Officer</td>
<td>TBA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety and Health representative</td>
<td>Stuart Mather</td>
<td>3899</td>
<td></td>
</tr>
<tr>
<td>WATRI Safety Officer</td>
<td>Georgia Wachmer</td>
<td>7252</td>
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</tr>
</tbody>
</table>

**School Fire Wardens**

**North Building**

<table>
<thead>
<tr>
<th>Area</th>
<th>Warden</th>
<th>Ext</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Warden</td>
<td>Tom Hallam</td>
<td>1778</td>
</tr>
<tr>
<td>Deputy</td>
<td>TBA</td>
<td></td>
</tr>
<tr>
<td>Ground Floor Area Warden</td>
<td>James Wong</td>
<td>1591</td>
</tr>
<tr>
<td>1st Floor Area Warden</td>
<td>Lisa Brucciani</td>
<td>3894</td>
</tr>
<tr>
<td>2nd Floor Area Warden</td>
<td>Pam Anthony</td>
<td>7158</td>
</tr>
<tr>
<td>3rd Floor Area Warden</td>
<td>Lisa Thompson</td>
<td>3060</td>
</tr>
<tr>
<td>3rd Floor Area Warden</td>
<td>Jill Venn</td>
<td>3518</td>
</tr>
<tr>
<td>3rd Floor Area Warden</td>
<td>Debbie Egan</td>
<td>3060</td>
</tr>
<tr>
<td>4th Floor Clean Room Warden</td>
<td>Jarek Antoszewski</td>
<td>2100</td>
</tr>
<tr>
<td>4th Floor Clean Room Warden</td>
<td>Mariusz Martyniuk</td>
<td>3109</td>
</tr>
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</table>

**South Building**

<table>
<thead>
<tr>
<th>Area</th>
<th>Warden</th>
<th>Ext</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Warden</td>
<td>Tom Hallam</td>
<td>1778</td>
</tr>
<tr>
<td>Deputy</td>
<td>Brian Cowling</td>
<td>3552</td>
</tr>
<tr>
<td>Ground Floor Area Warden</td>
<td>John Schurmann</td>
<td>3113</td>
</tr>
<tr>
<td>1st Floor - EEE Area Warden</td>
<td>George Voyt</td>
<td>3552</td>
</tr>
<tr>
<td>2nd Floor - EEE Area Warden</td>
<td>Ken Fogden</td>
<td>3552</td>
</tr>
</tbody>
</table>

**WATRI**

<table>
<thead>
<tr>
<th>Area</th>
<th>Warden</th>
<th>Ext</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Fire Warden</td>
<td>Georgia Wachmer</td>
<td>7252</td>
</tr>
<tr>
<td>Level 1</td>
<td>Mladen Males</td>
<td>7271</td>
</tr>
<tr>
<td>Level 2</td>
<td>Bijan Rohani/Teck Lee</td>
<td>6438</td>
</tr>
<tr>
<td>Level 3</td>
<td>Tarith Devadason</td>
<td>7268</td>
</tr>
<tr>
<td>Level 4</td>
<td>Georgia Wachmer</td>
<td>7252</td>
</tr>
</tbody>
</table>
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1. General Policy Statement on Safety and Health Management from the Head of School

Electrical, Electronic & Computer Engineering covers a very wide range of engineering endeavours and activities. As staff or students in this School you could potentially be exposed to a similarly wide range of hazards at various times. These hazards can range from chemical agents, biological agents, radiation, lasers, heat, dangerous machinery, etc.

The University, Faculty and School accept their legal and moral obligation to provide and maintain a safe working environment for staff, students and visitors. The purpose of this manual is to provide you with a framework for developing safe working practices, to remind you of your personal responsibility to follow all safety guidelines and to maintain an active safety awareness at all times. The School supports the University Occupational Safety and Health policy and this manual is a supplement to it.

While this manual provides a basic safety framework, particular laboratories and equipment in the School will have their own specific safety procedures. Those procedures will be provided by your supervisor (who will either be a lab demonstrator, a final year project supervisor, a postgraduate supervisor or a line manager). It is the responsibility of the supervisor to obtain and provide this additional information to you. If you feel at any time that adequate information, training or instructions have not been provided to you, you are encouraged to seek such information from your supervisor or any of the School Safety Officers in the appropriate areas of concern.

A copy of this manual will be made available to all staff and students via the School’s website, and it will be reviewed and kept up to date to accommodate changes in School activities and operations.

Finally, I ask you to explore this manual, taking note where appropriate, and use it as a framework for a safe and productive time here.

A/Prof Brett Nener
Head of School
19 Feb 2008

Signed Copy by A/Professor Brett Nener held on file in the School Manager’s Office

Signed
Head of School

Dated:
2. **The Organisation for Carrying Out the Policy**

Ultimate responsibility for safety & health in the School lies with the Head of School. Successful management of safety and health can only be effectively achieved when the participation of staff at all levels in the school is built into all its processes for identifying and controlling risk.

For routine safety and health matters the line of responsibility follows the normal managerial lines in the School.

All members of the school have a responsibility to cooperate with their colleagues to achieve a safe and healthy workplace, and to take reasonable care of themselves and others. They are required to work in accordance with this policy and associated procedures.

Responsibilities extend beyond minimum compliance with statutory obligations; there is a responsibility to encourage good practice and due concern.

Whenever a member of this School notices a safety or health problem that he or she is not able to put right, it must immediately be reported to a person in authority.

To assist the Head of School in managing safety and health, there are key roles with specific duties as described below, or go to URL - [http://www.safety.uwa.edu.au/safety_personnel](http://www.safety.uwa.edu.au/safety_personnel)

i. **School Safety Officer**

   The role of the School Safety Officer is to assist the Head of School and supervisors in fulfilling their safety responsibilities.

ii. **Fire Wardens**
1. Quarterly building check
2. Duties in an emergency...

**Building Warden:**
On becoming aware of a potential emergency, the Building Warden shall determine the nature of the emergency and decide on the appropriate action. If an emergency is declared, the Building Warden shall initiate the emergency procedures which should include the following actions:

- ensure that the appropriate emergency service has been notified. This can be achieved by contacting Security on 2222;
- ensure that the Area Wardens are advised of the situation;
- initiate evacuation of the building/workplace;
- brief emergency service personnel on their arrival and thereafter act on the instructions of the emergency service’s senior officer;
- being available, or organising Area Warden cover, at all times that the building is normally occupied;
- organising and distributing to all Wardens and to all building occupants relevant information for use in an emergency, including details of the fire alarm system, the emergency warning system and emergency procedures;
- prominently displaying evacuation procedures and plans for areas;
- maintaining and distributing to all building occupants a current list of all Area Wardens and their Deputies (with phone numbers and locations);
- training, or organising the training of, newly-appointed Area Wardens in Emergency Control Organisation (ECO) operations;

**Deputy Building Warden** -
Is required to perform the duties of the Building Warden if that person is unavailable during an emergency

**Area Wardens** -
Are responsible for individual workplaces or areas of a workplace. An Area Warden, on becoming aware of the emergency, should implement the emergency procedures for their floor, which should include the following actions:

- ascertain the extent of the emergency;
- assist people in immediate danger;
- raise alarm (break glass alarm, shout FIRE, FIRE, FIRE);
- attempt to extinguish fire if safe to do so;
- implement evacuation of their workplace;
- perform methodical search of their area to ensure that all persons have been notified of emergency and have, or are leaving, the workplace to the cluster point;
- assist mobility impaired persons;
- prevent persons from entering the building while the evacuation alarms are sounding by placing a staff member at their exit;
- communicate with Building Warden;

For further details on the tasks involved with evacuation please see evacuation procedures.

A Deputy Area Warden should be appointed for each Area Warden so to assume the Warden’s responsibilities when absent, and otherwise assist as required.

Area Wardens should be appointed for each floor or zone of a building, to control the emergency procedures for that area, generally as directed by the Building Warden. However, Area Wardens have the authority to evacuate their area if there is any impending danger.
Area Wardens must be familiar with:

- the operation of the fire alarm system, the emergency warning system and any other equipment used to assist in the operation of emergency procedures for the building;
- the area (floor or zone) they represent, including:
  - all means of egress and alternative escape routes;
  - the existence and position of rooms leading off blind passages; doors leading to dead-ends and any other confined areas in which persons could be located;
  - potentially hazardous materials or operations undertaken in their zone;
  - the location and operation of fire doors, smoke doors, fire blankets, portable fire extinguishers and fire hoses in their area;
  - the number and location of mobility-impaired persons in their area;
- It is important that an Area Warden or a Deputy Area Warden be available for each area during periods of normal occupancy. If possible, at least one Area Warden should be appointed for each twenty persons employed in every area;

To assist building occupants and emergency services personnel to identify Emergency Control Organisation (ECO) personnel during an emergency the Building Warden and all Area Wardens should wear red caps with WARDEN written on. These caps can be obtained from the Safety and Health Office on 6488 3938.

All University Building and Area Wardens are protected under the terms of the University's Public Liability and Professional Indemnity Insurance policies whilst undertaking their duties. These policies apply to all University staff provided they act within the scope of their duties and training and/or act in good faith. Protection is not provided under these policies for non University related activities.

iii. First Aiders

Nominated First Aid Officers have current Senior First Aid Certificates and have skills in basic first aid as well as more complex life saving techniques such as expired air resuscitation (EAR) and cardio-pulmonary resuscitation (CPR). First Aid Officers are required to be familiar with the specific hazards and conditions of their workplace.

iv. Safety Representatives

The functions of a safety and health representative are, in the interests of safety and health at the workplace for which they are elected:

- to inspect the workplace or any part of it at such times as agreed with the Faculty/School/Discipline/Centre heads
- immediately, in the event of an accident, a dangerous occurrence, or a risk of imminent and serious injury to, or imminent and serious harm to the health of any person to carry out any appropriate investigation in respect of the matter
- to keep informed on the safety and health information provided by the University in accordance with the Occupational Safety and Health Act
- forthwith to report to the immediate supervisor any hazard or potential hazard to which any person is, or might be, exposed at the workplace that comes to his/her notice
- to refer any matters that he/she thinks should be considered by the School Safety Committee or the University Safety Committee
- to consult, cooperate and liaise with staff or students regarding matters concerning the safety, health and welfare of persons in the workplace

v. Chemical Safety Officer

The role of the Chemical Safety Officer is to:

- administer the chemical handling policies of the School;
- maintain inventory of chemical stores within the School;
- inspect laboratories and other areas where chemicals are used in order to minimise hazard;
- supervise the collection and disposal of chemicals within the School;
- advise staff and students on new and proposed legislation, together with safe work practises needed for compliance;
- identify training needs and arrange for School staff and students as necessary;
vi. **Radiation Safety Officer**

The School Radiation Safety Officer is an integral and important component of the radiation safety programme at UWA. The SRSO's specific duties include:

- assist the SHO and ultimately the Vice-Chancellor in ensuring that the school complies with the Radiation Safety Act and its regulations involving the registration of premises and licensing of major radioisotope users;
- ensuring the school upgrades and maintains its facilities to a standard suitable for the use of radioisotopes and for the procedures being undertaken;
- assist in the preparation and enforcement of local laboratory safety rules;
- ensuring all radiation users receive the necessary training, instruction and supervision to perform their duties safely;
- ensuring that radiation users submit protocols to the SHO for approval before commencing work with radioisotopes;
- ensuring all orders for radioisotopes are processed through the SHO and that radioactive waste is properly packaged and delivered to the SHO for eventual disposal;
- ensuring the legal transport of radioactive materials within and between departments;
- ensure monthly wipe tests are performed, any contamination investigated and all reports submitted to the SHO for auditing;
- ensuring all monitoring equipment is maintained and regularly calibrated;
- ensuring all radiation personnel are monitored and where appropriate, undergo biological monitoring;
- investigate any radiation exposure or radioactive contamination incidents;
- report to the Head of School, or if necessary direct to the SHO, of any radiation hazards within the school or any non compliance with established procedures by radioisotope users;

The School Radiation Safety Officer (SRSO) is expected to maintain records of:

- registration information, protocols and all orders placed and received;
- radioisotopes received, their use, movement and disposal;
- monitoring results from film badges, biological monitoring and wipe tests;
- calibrations of radiation detection and monitoring equipment;
- reports on any incidents or accidents;

vii. **Biological Safety Officer**

The Biological Safety Officer (BSO) is responsible (on behalf of the Head of School) for:

- giving advice to and consulting with laboratory and other staff in matters of biohazards;
- instructing new staff members, and post-graduate and honours students in safety procedures relating to biohazards;
- developing and periodically reviewing and updating the School's written biohazard safety procedures;
- administering the Schools biohazards waste disposal budget;
- procuring and issuing protective equipment, disposal bags, containers, spill kits and disinfectants, etc. for the School; and
- liaising with the Safety and Health Officer of the Safety and Health Office, etc, as required.
- maintaining a list of chemicals which are required for use in this policy.
- develop a comprehensive list of chemicals within the store of each School.

Local School Occupational Safety & Health Committees will have a monitoring and advisory role, and will include waste disposal arrangements in their workplace inspections.

viii. **Electrical Safety Officer**

The Electrical Safety Officer (ESO) works independently to maintain and enhance the electrical safety of staff and students, and minimize electrical risks by fostering compliance with legislation, codes and standards. The ESO will identify and address electrical risks and hazards, investigate and report on accidents and incidents, and consult with staff and students on matters concerning electrical safety.
General Responsibilities of all Staff

Staff at all levels should be aware of their responsibilities and also held accountable for their actions or inaction. This requires the ongoing incorporation of occupational safety and health (OSH) principles into work practices, the ongoing commitment of resources to OSH and communications between all levels of staff and others. All staff and students are responsible for their own safety and health and for that of others whose activities they may influence or control. The degree of responsibility a person has will depend on his or her level of influence or control. The roles and responsibilities for those other than those with key roles listed above are listed below:

a. All Managers

The following responsibilities are established in law and are the general responsibility of all management staff. In addition to the general duties, specific responsibilities also apply.

It is management’s responsibility to ensure that those issues that they cannot directly control are passed onto the relevant person(s).

All managers shall, as far as it is practicable, provide and maintain a working environment in which staff, students and others are not exposed to hazards and shall

- provide and maintain workplaces, plant and systems of work such that as far as practicable, staff, students, contractors and others are not exposed to hazards
- provide such information, instruction, training and supervision of staff and students as is necessary to enable them to perform their work in such a manner that they are not exposed to hazards
- consult and co-operate with safety and health representatives, employees and others at the workplace regarding safety and health issues
- where it is not practicable to avoid the presence of hazards at the workplace, provide staff and students with such adequate personal protective clothing and equipment as is practicable to protect them against those hazards, without any cost to the staff and student (as appropriate)
- make arrangements for ensuring that, so far as practicable that the use cleaning, maintenance, transportation and disposal of plant; and the use, handling, processing, storage, transportation and disposal of substances at the workplace is carried out in a manner such that staff, students, contractors and others are not exposed to hazards

All managers should have a basic understanding of the provisions of the relevant OSH and workers’ compensation legislation, codes of practice, Australian and other standards as well as of the UWA specific safety and health policies, procedures and guidelines. The UWA Occupational Safety and Health policy requires OSH to be an integral part of the responsibility of every manager and all those responsible for staff must be aware of, and take appropriate action on, OSH matters which may affect staff under their control.

b. Supervisors

Supervisors are those who have responsibility for the control of other persons within a work area or part of a work area of a Faculty/School/Centre/Section. In addition to the general responsibilities, supervisors are also responsible for

- ensuring that all staff supervised within their area are aware of their responsibility to work and act safely
- conducting regular safety inspections
- conducting and reporting incidents, injuries or near miss reports and/or investigations and ensuring corrective action is taken as necessary
- making training recommendations, as they see necessary, to the Faculty/School/Centre/Section heads
- ensuring the proper induction of new staff, following University guidelines
- cooperating in the rehabilitation of injured employees
- cooperating in the implementation and administration of the University safety and health policies, procedures and guidelines
c. **University employees, undergraduate and post-graduate students**

All employees and students are responsible for working and acting safely. Specific responsibilities include:

- taking reasonable care of their safety and health and that of co-workers, students and visitors
- cooperating with the implementation and administration of University safety policies, procedures and guidelines
- observing all instructions and rules issued to protect their safety and health and that of others
- using plant and equipment as instructed by their supervisor
- making proper use of all safeguards, safety devices, personal protective equipment and other appliances for safety purposes
- using protective equipment and wearing personal protective clothing as instructed
- seeking information or advice regarding hazards and procedures where necessary before carrying out new or unfamiliar work
- being familiar with emergency and evacuation procedures and the location of first aid kits, personnel and emergency equipment, and if appropriately trained, using emergency equipment
- reporting all incidents, injuries, near misses and hazards to their supervisor

d. **Contractors**

Contractors includes principal contractors and their sub contractors, who may be engaged by Office of Facilities Management, Faculties, Schools or Sections for construction, building and infra-structure maintenance and repair, communication installations and deliveries on campus. Contractors are required to comply with the UWA Contractor Safety and Health policy and are responsible for:

- ensuring their staff are properly qualified and trained to safely undertake the work;
- ensuring they and their staff are properly inducted to UWA specific standards;
- submitting a completed Risk Management Checklist with proof of insurances;
- submitting a Safety Management Plan for larger contract works;
- obtaining permits to work as required prior to commencing any hazardous work such as hot work, asbestos removal, demolition, confined spaces or electrical work;


e. **Visitors**

Visitors are responsible for cooperating with University safety and health requirements and not interfering with any aspects of the safety and health management systems on campus.

**Duty of Care**

For any event for which you have responsibility for the safety and health of others, you should familiarise yourself and those within your care with basic domestic safety arrangements, for instance, location of fire extinguishers and emergency exits.
3. **The Arrangements for Safety and Health**

3.1 **Reporting & Investigating Safety or Health Issues**

A member of the School noticing a safety or health problem that they are not able to put right themselves should immediately tell someone in authority, following the University’s, “resolving safety issues” policy which can be found at:


All hazards, incidents and injuries must be reported, investigated and resolved. Any unresolved issues should be dealt with in accordance with the following:

Refer to the following University web page for more information on reporting and investigating hazards:

http://www.safety.uwa.edu.au/policies/incidentinjury_and_hazard_notification_and_investigation_procedures
3.2 Consultation for Safety and Health

All members of the School are encouraged to raise concerns about safety and health with appropriate managers or supervisors. Additional formal consultation will take place through the School Safety Committee.

The membership of the School Safety Committee shall consist of the Head of School, School Manager, School Safety Officers, Safety and Health Representative, Student Representative, Chief Fire Warden, First Aiders, School Chemical Safety Officer, School Radiation Safety Officer, School Biological Safety Officer and School Electrical Safety Officer.

The Committee shall be chaired by the Head of School, or his nominee, and shall meet at least twice each year. Minutes of meetings shall be made available to all members of School staff via the Intranet, on the School's OHS web page - http://staff.ee.uwa.edu.au/osh

The primary role of the School Safety Committee is to advise the Head of School on the implementation of matters relating to safety and health in the local area. This will be achieved by:

(i) Consideration of reports on such matters as accidents and other incidents, safety inspections, and reports from those with delegated safety duties;

(ii) Assisting in the development of safety rules and safe systems of work;

(iii) Advising on the safety content of information and training for staff and students;

(iv) Monitoring of this policy.

3.3 Safety and Health Training

The immediate manager or supervisor will ensure that all new members of staff are inducted for safety and health as soon as practicable, by using the following as a framework:

UWA guidance (http://www.induction.uwa.edu.au/for/new_staff)

Safety and Health Office checklist (http://www.safety.uwa.edu.au/forms/safety_induction_checklist)

School safety induction (http://staff.ee.uwa.edu.au/osh)

Records of induction should be kept.

New students will be informed about the same points as part of their introduction to the School. Students should also be made aware of the student guide to safety and health (http://www.safety.uwa.edu.au/policies/student_guide_to_safety_and_health), produced by the SHO.

Part-time students will be briefed by their course tutor and supported by written briefing materials.

The need for specialist training should be identified by managers and supervisors, and all requests for such training should be directed to either the Head of School or the SHO.

Members of the School will not be expected to undertake any procedure for which they have not been adequately trained.

The University runs and arranges a number of safety related training courses (http://www.safety.uwa.edu.au/courses) which are tailored to the needs of UWA's various workplaces. Topics covered which may be of relevance to members of the School include ergonomics, fire safety, laboratory safety, chemical safety, radiation safety

3.4 Fire and Emergency Procedures

Refer to: http://www.safety.uwa.edu.au/policies/emergency_fire_and_evacuation

Members of the School should familiarise themselves with the document "Emergency Procedures" and keep a copy in their workplace. This document is available at: http://www.safety.uwa.edu.au/policies/emergency_procedures
An emergency in a building can develop from a number of causes including fire, bomb threat, release of chemical, biological or radioactive material, gas leakage, civil disorder, or structural fault. A prompt and organised response by occupants in such an emergency is essential for the welfare of occupants and for the preservation of University assets.

Fire fighting facilities are for fighting fires; they are not to be interfered with and must be free of any obstructions. Empty or faulty fire extinguishing equipment should be reported to your supervisor.

- **Safety and Emergency Principles**
  
  Make yourself familiar with the location of all fire fighting appliances in your work area. Know the type of fire fighting appliances to use on the various types of fires. Never use water or foam on electrical fires.
  
  Report any fire that you observe, and if it can be easily and safely extinguished then do so, or seek assistance immediately.

- **To help prevent fires**
  
  Keep all areas clear.
  Don’t accumulate rubbish.
  Store and handle flammable liquids carefully.
  Good housekeeping is the first principle of fire protection.
  Don’t give a fire a chance.
  The first five minutes is worth more than the next five hours.

- **Fire alarm system**
  
  The fire alarm is designed to provide notification of the presence of fire (by detecting heat or smoke) in the building. It is normally made up of fire detectors positioned throughout the building and wired to the fire indicator panel and fire alarm. When a detector is activated, its location is shown on the fire indicator panel, the fire alarm commences to sound continuously, a signal is sent automatically to the fire brigade.
  
  The fire alarm system can be manually activated using the break glass alarm.

- **Emergency warning and intercommunication system (EWIS)**
  
  The EWIS provides an audible signal throughout the buildings to warn occupants of a fire or other emergency situation. A two-stage system is used. The ALERT is a steady tone sounding automatically on actuation of the fire alarm and warns people to get ready to evacuate. The EVACUATION signal is a rising tone and sounds automatically after a set time delay. This sound signifies that people should begin to evacuate the building.

- **Priorities during an emergency in a building**
  
  **FIRST PRIORITY:** Protection of Life
  
  The first priority is to ensure that all people who may be in danger are warned, and that action is taken to guarantee their safety, before any steps are taken to prevent the spread of the hazard, to secure assets, or to eliminate the hazard.

  **SECOND PRIORITY:** Prevent Spread of Hazard
  
  The second priority aims at controlling the extent of the hazard within the building and minimising its release into the environment.

  **THIRD PRIORITY:** Save Assets in the Affected Area.

  **FOURTH PRIORITY:** Eliminate the Hazard.
• Implementation of Emergency Procedures
  
  • Evacuation of lecture theatres, libraries and teaching laboratories
    
    The building’s Building Warden and Wardens shall implement the emergency procedures for a building. These areas require explicit organisation because of the potential for large numbers of people to be congregated in a small area. The person in charge of the class shall act as the Warden and is responsible for evacuating his/her area. Upon hearing the alert signal or when notified of an emergency, the person in charge of the class should direct students to:
    
    • Stand fast and push chairs, large bags, etc. under desks or benches.
    • Turn off electrical devices and laboratory operations that are not safe to be left unattended.
    • In controlled sequence, move along gangways to main aisles and exit in an orderly manner through the nearest appropriate exit.
    • Close all doors and windows on leaving.
    • Move to the assembly area.
  
  • Emergency Evacuation for Fire
    
    • If you discover a fire:
      
      • Help people in immediate danger
      • Warn others by shouting “Fire, Fire, Fire”, raise the alarm if not already sounding and telephone 2222
      • Decide if you can put the fire out, be over cautious.
      • Don’t attempt to use a fire extinguisher if you have never been instructed on how to use one.
      • Don’t use the hose reels, these are for Fire Department use only.
      • If you can put out the fire then do so, if not proceed to evacuate the building.
    
    • If fire alarm is sounding; you must prepare to evacuate the building:
      
      • Switch off all computers, printers and electrical appliances.
      • Close all windows and doors.
      • Gather your personal belongings in preparation to immediately evacuate the building.
      • Organise/help other people in the room.
      • If the fire alarm is still sounding after one and a half to two minutes, evacuate the building and proceed to your emergency assembly area, which for the School of Electrical Electronic and Computer Engineering is in the Math’s courtyard outside the Mathematics & Physical Sciences Library.
    
    • Move at a quick walk, do not run.
    
    • If you have to move through a closed door that you cannot see through:
      
      • Feel the door to see if it is hot.
      • Look for smoke coming under the door.
      • Open the door slowly and look around it to see if there is a fire behind it.
      • If there is no fire on the other side, proceed through and close the door behind you.
    
    • Move to the emergency assembly area as quickly as possible.
    
    • Report to your Warden that you/your group is there and if you know of anyone trapped in the building.
    
    • Remain in the emergency assembly area until you are informed that you may leave or move by either a warden, the occupational safety and health officer, one of the security personnel, or by the police or fire brigade.
• **You notice someone on the verge of panic:**
  - Give them a task or responsibility.
  - The person will still require constant monitoring.
  - Do not hit them.
  - If they are co-operative, take hold of one of their hands and guide them out of the building to the emergency assembly area.
  - If they will not co-operate or start to grab hold of things:
    - Leave them where they are.
    - Evacuate yourself and inform your fire warden, the occupational safety and health officer, one of the security personnel, or the police or fire brigade immediately.

• **If you encounter a person with some form of physical disability that restricts their mobility:**
  - You may be required to assist them from the building.
  - If you are unable to remove them from the building, many stairwells have respite areas for mobility impaired persons. They can be left there where they are shielded from the fire, and retrieved by emergency personnel on arrival.
  - It is important to inform the emergency personnel or Building Warden of the person’s location so they can be retrieved as soon as possible.
  - Leave the person’s mobility aids behind; they can always be claimed on insurance.

• **If you are trapped in a room:**
  - Exit through a window if you are on the ground floor.
  - If you are not on the ground floor:
    - Close the door.
    - Go to the window.
    - If there is smoke in the room open the window a little so you can breathe fresh air.
    - Attract people’s attention to your plight. Place signs on the windows.
    - Do not open the window fully.
    - Wait for the fire brigade to rescue you.

• **Do not procrastinate, remember:**
  - Fires spread rapidly.
  - Fires produce a thick black smoke that is difficult to see through and causes suffocation.
  - The freshest air will always be near the floor.
  - Move quickly. Do not run.
  - Be decisive.
  - Think for 10 to 30 seconds and follow that decision.

• **Bomb Threat Procedure**
  - If you receive a telephone call that is a bomb threat; **always treat bomb threats as real**.
  - Do not pass the call on to someone else.
  - Take down all the information indicated in the Bomb Threat Action List.
  - Do not hang up the phone when the call is finished.
  - Inform security/traffic immediately on the emergency number 2222 24 HOURS A DAY.
  - Inform your immediate superior and Head of School.
  - Evacuate the building if instructed to do so by University Security.
  - Notify everyone in the building that there is a bomb threat and they are to evacuate the building and move to the assembly area. This can be done quietly by word of mouth or public address.
  - Only in an emergency would you set off the evacuation/fire siren/bell.
  - As you leave the building ensure that you take your own, and only your own, personal belongings with you.
  - Leave all doors and windows open.
Quickly and quietly move out of the building to the emergency assembly area.
When you are at the emergency assembly area stay there until you are told that you can leave.

Medical Emergency
A list of First Aid Officers is located in the School. If an injury requires further attention then the Medical Center is located on campus, in the Guild Village and can be contacted on 6488 2118. Medical doctors and nurses are available at the Medical Centre during normal workdays between the hours of 9 a.m. to 5 p.m.
If an ambulance is required or the accident occurs outside the Medical Centre’s hours then phone Security on ext 2222, who will arrange for an ambulance and assist in directing it to your location.
Security on campus can be contacted on ext. 3020, or in the event of an emergency call ext. 2222.

Laboratory Emergency Procedures
Laboratory work may involve a number of hazardous substances and procedures. Laboratory personnel need to be fully aware of the risks and be able to respond in an appropriate manner should an incident or emergency situation arise.
Examples of situations for which planning and rehearsals are needed include fire; personal injuries (including substances or objects in the eyes, minor cuts and puncture wounds); chemical spills, biological spills and radioactive spills. Guidelines for appropriate responses to minor and major incidents are provided in the following tables.

<table>
<thead>
<tr>
<th>Emergency and precautions</th>
<th>Minor</th>
<th>Major</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire</td>
<td>Alert people in laboratory and activate alarm. Smother fire or use correct fire extinguisher. Aim extinguisher at base of fire. Always maintain accessible exit. Avoid smoke or fumes.</td>
<td>Alert people in area to evacuate. Activate nearest fire alarm or call Security number. Close doors to confine fire. Evacuate to safe area or exit building through stairwell; do not use lift. Have person knowledgeable of incident and laboratory available to assist emergency personnel.</td>
</tr>
</tbody>
</table>

Small fires can be extinguished without evacuation. Fire extinguishers should only be used by trained personnel. Never enter a room that is smoke filled. Never enter a room containing a fire without a backup person. Never enter a room if the top half of the door is warm to touch.
### Chemical spill

The range and quantity of hazardous substances used in laboratories require pre-planning to respond safely to chemical spills. The clean-up of a chemical spill should only be done by knowledgeable and experienced personnel. Spill kits with instructions, absorbents, reactants, and protective equipment should be available to clean up minor spills. A minor chemical spill is one that the laboratory staff is capable of handling safely without the assistance of safety and emergency personnel. All other chemical spills are considered major.

- Alert people in immediate area of spill. Wear protective equipment, including safety goggles, gloves, and long sleeve lab coat. Avoid breathing vapours from spill.
- Confine spill to small area. Use appropriate kit to neutralise and absorb inorganic acids and bases.
- Collect residue, place in container, and dispose as chemical waste.
- For other chemicals, use appropriate kit or absorb spill with vermiculite, dry sand, or diatomaceous earth. Collect residue, place in container and dispose as chemical waste.

### Biological spill

Biological spills outside biological safety cabinets will generate aerosols that can be dispersed in the air throughout the laboratory. These spills are very serious if they involve micro-organisms that require Group 3 containment, since most of these agents have the potential for transmitting disease by infectious aerosols. To reduce the risk of inhalation exposure in such an incident, occupants should hold their breath and leave the laboratory immediately. The laboratory should not be re-entered to decontaminate and clean-up the spill for at least 30 minutes. During this time the aerosol will be removed from the laboratory by the exhaust air ventilation system.

- Appropriate protective equipment is particularly important in decontaminating spills involving micro-organisms. This equipment includes lab coat with long sleeves, back fastening gown, disposable gloves, disposable shoe covers, and safety goggles and mask or full-face shield. Use of this equipment will prevent contact with contaminated surfaces and protect eyes and mucous membranes from exposure to splattered materials.
- Attend to injured or contaminated persons and remove them from exposure.
- Alert people in the laboratory to evacuate.
- If spilled material is flammable, turn off ignition and heat sources.
- Call for assistance.
- Close doors to affected area.
- Have person knowledgeable of incident and laboratory available to assist emergency personnel.

- Wear disposable gloves.
- Soak paper towels in disinfectant and place over spill area.
- Place towels in plastic bag for disposal.
- Clean spill area with fresh towels soaked in disinfectant.

- Attend to injured or contaminated persons and remove them from exposure.
- Alert people in immediate area of spill.
- Close doors to affected area.
- Put on protective equipment.
- Cover spill with paper towels or other absorbent materials.

- Carefully pour a freshly prepared 1 in 10 dilution of household bleach around the edges of the spill and then into the spill. Avoid splashing.
- Allow a 20-minute contact period.
- Use paper towels to wipe up the spill, working from the edges into the centre.
- Clean spill area with fresh towels soaked in disinfectant. Place towels in a plastic bag and decontaminate in an autoclave.
- Have person knowledgeable of the incident and laboratory available to assist emergency personnel.
Radioactive spill
Spreading of radiation beyond the spill area can easily occur by the movement of personnel involved in the spill or clean-up effort. Prevent spread by confining movement of personnel until they have been monitored and found free of contamination. A minor radiation spill is one that the laboratory staff is capable of handling safely without the assistance of safety and emergency personnel. All other radiation spills are considered to be major.

| Alert people in immediate area of spill. |
| Notify School Radiation Safety Officer (SRSO). |
| Wear protective equipment, including safety goggles, disposable gloves, shoe covers, and long-sleeve lab coat. |
| Place absorbent paper towels over liquid spill. Place towels dampened with water over spills of solid materials. |
| Using forceps, place towels in plastic bag. Dispose in radioactive waste box. |
| Monitor area, hands, and shoes for contamination with an appropriate survey meter or method. Repeat clean-up until contamination is no longer detected. |

<p>| Attend to injured or contaminated persons and remove them from exposure. |
| Alert people in the laboratory to evacuate. |
| Have potentially contaminated personnel stay in one area until they have been monitored and shown to be free of contamination. |
| Call SRSO. |
| Close doors and prevent entrance into affected area. Have person knowledgeable of incident and laboratory available to assist emergency personnel |</p>
<table>
<thead>
<tr>
<th>Emergency</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothing on fire</td>
<td>Roll person around on floor to smother flame, or drench with water if safety shower is <strong>immediately available</strong>. Obtain medical attention, if necessary. Report incident to supervisor.</td>
</tr>
<tr>
<td>Radioactive spill on body</td>
<td>Remove contaminated clothing. Rinse exposed area thoroughly with water. Obtain medical attention, if necessary. Report incident to supervisor and School Radiation Safety Officer.</td>
</tr>
<tr>
<td>Chemical spill on body</td>
<td>Flood exposed area with running water from faucet or safety shower for at least 5 minutes. Remove contaminated clothing at once. Make sure chemical has not accumulated in shoes. Obtain medical attention, if necessary. Report incident to supervisor.</td>
</tr>
<tr>
<td>Biological spill on body</td>
<td>Remove contaminated clothing. Vigorously wash exposed area with soap and water for 1 minute. Obtain medical attention, if necessary. Report incident to supervisor.</td>
</tr>
<tr>
<td>Hazardous material splashed in eye</td>
<td>Immediately rinse eyeball and inner surface of eyelid with water continuously for 15 minutes. Forcebly hold eye open to ensure effective wash behind eyelids. <strong>Obtain medical attention.</strong> Report incident to supervisor.</td>
</tr>
<tr>
<td>Minor cuts and puncture wounds</td>
<td>Vigorously wash injury with soap and water for several minutes. <strong>Obtain medical attention.</strong> Report incident to supervisor.</td>
</tr>
</tbody>
</table>
3.5 Action in the Event of an Incident - First Aid Procedures

Refer also to:
http://www.safety.uwa.edu.au/policies/incidentinjury_and_hazard_notification_and_investigation_procedures

First aid is the emergency care of the injured or the sick and continues until the casualty is attended by a doctor, is removed to a hospital or a home, or has fully recovered. First aid arrangements appropriate to the needs of the work environment should be set in place.

Every employee should be conversant with the procedures required to ensure fast and efficient administration of first aid and the necessary access to follow-on procedures.

It is essential that the location of first aid cabinets and other relevant first aid equipment is known, and that employees are conversant with the phone number or extension that will quickly alert emergency assistance. Employees must be fully aware of their location and surrounds so that emergency assistance can be directed via the shortest possible route.

The use of phonetic alphabet to direct assistance to areas identified by letters of the alphabet ensures assistance arrives where it is required and avoids loss of valuable time.

Medical help should be sought where the injury or illness looks serious or there are any doubts about cause of treatment. Treatment should be obtained for all injuries to minimise or prevent the development of complications.

Always assess the situation before attending to first aid and emergency situations. Do not rush in and also become a casualty. Assess the immediate danger to yourself before responding.

Essential Measures

Essential first aid measures are those which contribute to the following:

- Sustaining life.
- Preventing the injury or illness from becoming worse.

Some of the necessary actions are –

- Remove the cause of injury if still active or, if this is not possible, remove the casualty from the source of danger. Particular care is necessary in the event of electrocution.
- Obtain assistance from a second person.
- Check breathing. If breathing is absent, restore respiration.
- Check pulse. If pulse is absent, restore circulation.
- Contain any bleeding.
- Lessen shock.
- Reassure the casualty
- Promote recovery.

Instruction

The following instructions should be observed in rendering first aid –

- Give injuries priority according to severity.
- Do not move the casualty unnecessarily; handle gently.
- Remove clothing only when necessary.
- Arrange for the transfer of the casualty.
- Check that there is an official record of the injury and/or circumstances.
- Do no more than is necessary to achieve these objectives.
Restoring Respiration

If breathing is laboured, the patient must be placed in the correct recovery position. Ensure the airway does not contain any foreign matter and monitor patient’s breathing until help arrives.

Where there is a risk of contaminating yourself, use a mechanical resuscitator or some item that will allow you to administer expired air resuscitation.

If spontaneous breathing has ceased, expired air resuscitation (EAR) must be administered as follows when pulse is present –

- Lie the patient on back.
- Tilt the head well back to clear the air passage and keep the tongue out of the throat.
- Open your mouth wide and take a deep breath.
- Cover the patient’s mouth with yours, pinch the patient’s nostrils together, to prevent the air escaping through the nasal passage.
- Exhale, until the patient’s chest just rises, don’t over blow. Turn your head and watch the patient’s chest fall.
- Give two effective breaths then check for signs improvement e.g. movement or breathing.
- Repeat at a rate of 15 breaths a minute, which is equivalent to 1 breath every 4 seconds until help arrives.

If the patient’s mouth or jaw has been injured, seal the patient’s mouth and use the mouth to nose method.

When spontaneous respiration is restored turn the patient into the recovery position.

For more detailed information, go to (http://www.stjohn.org.au/)

Restoring Heart Action

In instances where the heart has ceased to pump, breathing will also be absent. To restore heart function and breathing the following steps must be applied, with the patient lying on their back -

- Check the carotid pulse, by placing two fingers on one side of the throat.
- It is important that you DO NOT apply pressure to the pulse on both sides of the throat at the same time.
- The pulse check is to be maintained for 5 seconds. Should you be unable to detect a pulse on one side repeat the process on the other side. In some conditions a pulse is present on one side only.
- Find the centre point on the lower half of the breastbone, which is approximately 25 mm below a line drawn through the nipples.
- Place the heel of one of your hands over the selected position.
- Grip the wrist of this hand with the other hand, keep the arm straight and apply a downward pressure, compressing the chest 50mm or 1/3 the depth of the chest. Release the pressure.
- Administer 5 sets of 2 breaths and 30 compressions in about 2 minutes. This is approximately equivalent to 1 breath and 15 compressions every 12 seconds.
- If 2 people are available, one should administer the cardiac compression and the other the expired air.

The carotid pulse must be checked for return of spontaneous heart beat after the first minute and then every 2 minutes.

Although unskilled operators may increase the risk of causing damage to the rib cage, heart or liver, the most important objective is to save life.

External cardiac compressions must be stopped immediately the heart begins to function independently.

For more detailed information, go to (http://www.stjohn.org.au/)
External bleeding

External bleeding is to be treated as detailed below -

- Universal precautions should be applied, that is, where all blood and body fluids are treated as potential sources of infection.
- Use personal protective equipment (gloves, eye protection if required) and if skin contact occurs, wash thoroughly.
- Cover the wound with a clean pad and press firmly until the bleeding slows or stops. Pressure must be uninterrupted.
- Keep pressure on the wound by bandaging the pad firmly in place.
- Elevate the part if possible - do not use a tourniquet.
- If bleeding continues, apply another pad and bandage - do not remove the first one.
- If no pad is available and bleeding is profuse get the patient to squeeze the edges of the wound together with their fingers.

Burns

General Treatment

- To relieve pain and swelling flush with cold water for 10 to 15 minutes and then apply cold water compresses.
- Do not prick blisters.
- Do not forcibly separate skin from adhering material.
- Do not apply any lotions, ointments or oily dressings.
- Always obtain medical attention for all but the most superficial burns.

Superficial Burns

- Flush with cold water.
- Apply a sterile dressing and bandage firmly. Never use adhesive wound dressings or cotton wool.
- No oily creams should be applied.

Severe burns

- Call for an ambulance and medical assistance.
- Remove or cut away clothing over the burned area but leave clothing that has adhered to the skin.
- Flush liberally with cold water.
- Cover the burned area with a sterile or clean, dry dressing.
- Rest casualty. Cover casualty with blanket.
- No oily creams should be applied.

Chemical burns

- Wash off immediately with a large volume of water - use a safety dump shower if available.
- Remove contaminated clothing.
- Flush eye under a gentle steam of cold water.
- Ensure chemical is washed from under the eyelid.
- Call for an ambulance or medical assistance.
- No oily creams should be applied.

Cold burns

- DO NOT rub or massage the affected area.
- DO NOT expose to a radiant heat source.
- DO NOT allow the casualty to smoke, or drink alcoholic beverages.
- Otherwise treat as for hot burns.
Gassing

Where a person is affected or overcome by gas, the first aid measures are as follows -

- Ascertain the identity and toxicity of the gas if possible.
- Remove the casualty from exposure to gas in a safe manner – using breathing apparatus if necessary. Take care not to become a casualty yourself.
- Loosen restrictive clothing, especially around the neck.
- Keep patient warm and lying down in a comfortable position. If the person is unconscious, turn them on their side.
- If breathing has stopped, apply artificial respiration.
- Obtain medical attention as soon as possible – this is particularly important where the gas is highly poisonous or has a delayed action.

If oxygen is immediately available, it can be given by a suitably qualified person in all cases where the casualty's breathing is judged to be inadequate.

For attack by an irritant gas, irrigation of the eyes, and possibly the skin is likely to be necessary.

There is no approved First Aid for cyanide poisoning that can be performed by non-qualified personnel. A First Aid Officer qualified in oxygen resuscitation should administer oxygen. Ring for Emergency Assistance (ext 2222) and also call Sir Charles Gairdner Hospital Emergency Department (9346 2396) to inform them that a patient suffering cyanide poisoning will be arriving by ambulance.

Eye injuries

General

Only essential first aid should be given to any injury of the eye. Any wound on the eyeball or eyelids may be serious and should receive immediate medical attention by a qualified medical practitioner.

Foreign body in eye

- Do not try to remove any foreign body, which is on the cornea or seems to be embedded.
- If a foreign body can be seen and it is not on the coloured part (iris/pupil) of the eye, try to remove it.
- by wiping it carefully with the corner of a moistened clean handkerchief or wisp of cotton wool.
- Flushing the eye with saline may dislodge a foreign body.

First Aid Cabinets

First aid kits should be constructed of impervious material and be clearly labelled with the words FIRST AID and a safety information sign complying with AS 1319. Anyone removing items from the first aid cabinet must inform the First Aid Officer. It is the responsibility of the First Aid Officer to maintain the contents of the first aid kit.
3.6 **Hazard ID and Risk Assessments**


There is a legal requirement to assess risks. Where these are found to be significant, the assessment must be written. It is the responsibility of managers and supervisors to satisfy themselves (while not necessarily examining every assessment) that risk assessments:

- are conducted;
- are completed to a consistent and reasonable standard;
- relate to the actual work being undertaken;
- are reviewed; and
- are supported by adequate and appropriately maintained records

It is the responsibility of persons in control of areas or activities to ensure risk assessments are carried out. A general risk assessment form ([http://www.safety.uwa.edu.au/forms/risk_management_matrix](http://www.safety.uwa.edu.au/forms/risk_management_matrix)) is available from the SHO website ([http://www.safety.uwa.edu.au](http://www.safety.uwa.edu.au)).

There are five principal steps in the process of carrying out a risk assessment. These are to:

1. Look for the hazards, ignoring the trivial and concentrating only on significant hazards, which could result in serious, harm or effect several people.
2. Decide who might be harmed and how, thinking about people who may not be in the workplace all the time, e.g. cleaners, visitors and contractors.
3. Evaluate the risks arising from the hazards and decide whether existing precautions are adequate or more should be done.
4. Record your findings.
5. Review your assessment on a regular basis. For example:

   - If a laboratory procedure is carried out frequently the risk assessment only needs to be undertaken once. A single risk assessment will cover the procedure being repeated over and over again. However, sooner or later you will need to review your assessment in the light of changes in substances and procedures that could lead to new hazards.
   - In an office environment, changes may be made to the layout and/or introduction of new electrical equipment i.e. kettle, heaters.
   - You will want to consider these sorts of changes in their own right and do whatever you need to reduce the level of risk.

Listed below are specific hazards found in the School with the control measures which you should be aware of.

3.7 **Smoking Policy**


The University is committed to ensuring that its staff, students, contractors and visitors are not exposed to tobacco smoke in its workplaces including its building and vehicles. In the interest of having a healthy workforce, staff who smoke are provided with assistance to quit smoking. Accordingly, managers and supervisors shall promote and ensure compliance with the Smoking Policy.
3.8 Electrical Safety

Refer to: http://www.safety.uwa.edu.au/policies/electrical

The following arrangements for electrical safety apply to all electrical equipment in use in the School, including personal items.

Only electrical equipment that is properly installed and maintained should be used in the School. All electrical equipment, which is connected to the electrical supply by a flexible cord, will be regularly inspected, tested and tagged. This includes extension cords and powerboards. Tested equipment will have a label attached, indicating that it has been tested and meets the AS3760 Standard, which will bear the date after which it no longer should be used. Items not bearing such a label, or where the date on the label has expired, must be withdrawn from use and given to the appropriate manager or supervisor to arrange for testing and tagging.

All members of the School are responsible for routinely checking that their electrical appliances are not damaged, and that there are no obvious signs of misuse such as damaged or discoloured plug tops and worn cables.

Any item that becomes faulty, or fails electrical testing must be taken out of service and labelled as unsafe for use, and either discarded or sent for repair. Faulty and failed equipment must not be used.

Equipment and furniture should be sited so as to avoid the need for leads to trail across floors. Where these cannot be avoided, proprietary rubber strips should be used to reduce the risk of tripping. The use of double adaptors should be avoided wherever possible. Only powerboards with overload protection are permitted. Extension leads are seen as temporary measures to be used only until additional socket outlets have been provided.

School/Unit equipment held off-site will be included in periodic inspections and the holder is responsible for bringing it into the School for testing.

Out of Service tags

Out-of-service tags are yellow and black on a white background. They are used to identify faulty or unsafe equipment taken out of service. This prevents the faulty equipment from damaging other equipment or causing injury to people operating the equipment.

When equipment is being installed, altered or maintained, the person doing the work must attach an out-of-service tag in a suitable position on the equipment. The tag must have the name of the person (printed and signed), the date of placement and why the equipment has been placed out of service. Removal procedures include checking that all equipment can safely be energised and then notifying everyone involved with the work including the lab supervisor that the equipment is to be energised. The out-of-service tag should not be removed until the lab supervisor or authorised person has been advised that the job is completed and the equipment has been cleared for safe operation.

Electrical Equipment

Electrical work, and modifications to electrical equipment working at above 50 volts, must only be attempted by licensed personnel. This sort of work can be done by the school’s Electronics Workshop.

Extension Cords

If extension cords are used in a temporary capacity they must be clear of passageways and stairs and must be supported in such a way that they will not be subject to mechanical damage.

The cord must be of adequate capacity to carry the electrical loading of the appliance it is supplying.

Extension cords must be made to suit the individual purpose so that excessive coiling does not occur. An exception to the above applies on certain movable equipment such as polishers, vacuum cleaners. With this equipment extreme care must be taken during operation so that cords are not damaged.
Extension cords are subject to the rules for electrical testing of equipment and must carry a current safety test tag. Extension cords without a current safety test tag must not be used.

**Double Adaptors**

It is strongly recommended that double adaptors not be used in the School.

**Power Boards**

Power boards may be used provided power requirements are checked first so overloading does not occur. Power boards must have a built-in overload protection device.

**Fluids and Electricity**

Fluids and electricity do not mix. Keep fluids that are needed for the operation or samples being tested to the minimum required.

Make sure these fluids are not put on top of the equipment. They should be placed on the bench to one side.

**Fluid Spill**

If fluid is spilt on or into a machine, turn the machine off immediately, place an out of service tag on it and report to the school’s electronic workshop so that an inspection and safety test can be carried out.

**Mains Socket**

Removal of the equipment from the mains socket should be done by pulling on the plug itself and not the power lead, after the power has been switched off at the socket.

**Relocating Equipment**

Before operating equipment that has been relocated always check the flexible cord and plug to make sure they have not been damaged in transit.

**Cleaning Electrical Equipment**

Cleaning electrical equipment must be carried out with the equipment and the power supply switched off and the power cord removed.

**Fire in Electrical or Electronic Equipment**

In case of fire in electrical or electronic equipment, disconnect the equipment from the mains and turn off any exhaust or cooling fans. If possible extinguish the fire using either a dry powder or preferably a CO₂ fire extinguisher. Do not use a water based fire extinguisher or hose reel on fires involving electricity.

**Electric Shock**

The duration, magnitude and path of an electric shock are of critical importance. The most common paths are from hand to hand or from hand to opposite foot, via the heart.

You can prevent your body from becoming part of an electrical circuit by following these common rules: Never use an electrical appliance which seems faulty or looks to be in poor condition. Avoid simultaneously touching an exposed metal surface whilst using an electrical appliance or piece of equipment, always use double insulated appliances when working in wet areas and wear covered in shoes.

If someone receives an electric shock, immediately switch off the current. If they are unconscious do not waste time looking for the switch or socket; stand on dry non-conducting material, such as a rubber mat, wood or linoleum, and use rubber gloves, dry clothes, dry rope or wood to push or pull...
them away from the source of the electric shock. Follow the steps for emergency resuscitation and recovery. Call the emergency number 6488 2222.

Medical advice should always be sought after an electric shock incident, whether or not the person lost consciousness. It is a legal requirement that all electrical faults are reported. Either complete incident/injury form or notify the Technical Officer (Electrical) on 6488 2036.

For information on the effects of electric current passing through the human body see AS 3859-1991.

3.9 Purchasing Policy

All materials and equipment acquired by the School, or by individuals for use at work, must comply with the standards, codes and regulations prescribed by law and University requirements. Only those that can be safely accommodated and used within the School may be obtained. The individual wishing to acquire the material or equipment should obtain all necessary information to enable the risk assessment to be undertaken in order to demonstrate compliance with the foregoing.

To monitor that the requirements of the purchasing policy are being followed, only colleagues who are authorised signatories must approve acquisitions. These are revised annually and details can be obtained from Financial Services.

3.10 Children

If under exceptional circumstances children are brought onto university premises they must be under immediate and close supervision of a parent or guardian at all times. They are not permitted in any workshop or laboratory where experimental or other work is being undertaken or other environment considered by the person in charge to be inappropriate.

3.11 Visitors and Contractors

Visitors to the School should be asked to report to the relevant unit office. The member of the unit who the visitor wishes to see will be telephoned from the office and asked to report to the office to meet their visitor and subsequently accompany them in the unit. The University policy on visitor safety (http://www.safety.uwa.edu.au/policies/visitor_safety) and contractor safety and health policy (http://www.safety.uwa.edu.au/policies/contractor) should be followed.

Visitor Safety

1. Background
   The range of non-employees who may be present on UWA grounds and to whom UWA owes a duty of care includes:
   - Contractors (See http://www.safety.uwa.edu.au/policies/contractor)
   - Students (See http://www.safety.uwa.edu.au/policies/student_guide_to_safety_and_health)
   - Visitors (general public, service providers)
   - Trespassers

2. Legal Requirements
   Under section 19 of the Occupational Safety and Health Act, UWA has a duty of care to avoid exposing employees, contractors, students and visitors to the workplace to an unnecessary risk of injury by establishing and providing a safe environment and systems of work.
3. Procedures

Areas identified as potential sources of risk to visitors at UWA include:

- Unauthorised entering of buildings (access to restricted areas). It is a UWA requirement that all visitors must attend the Reception counter in each building/department in the first instance. Visitors will then be escorted or given directions to their final destination.

It is also important that visitors are accounted for and are able to follow the correct procedures in relation to any emergency evacuations that may occur in the building. ([http://www.safety.uwa.edu.au/policies/emergency_fire_and_evacuation](http://www.safety.uwa.edu.au/policies/emergency_fire_and_evacuation))

- Personal safety on campus (security, emergency procedures). Public phones are available on campus in 18 locations. In an emergency call 1800 655 222 (free call) or 6488 2222 to the Security Office, to report any personal safety issue. ([http://www.fm.uwa.edu.au/about/security_safety](http://www.fm.uwa.edu.au/about/security_safety))

- Campus environment (pathways, lighting, building or equipment hazards).

It is important that visitors to campus have access to hazards and incident reporting procedures in the event that an event occurs. As required, visitors should complete the appropriate UWA Hazard form or Incident report form.

4. Contacts

1. Safety and Health on 6488 3938 or safety@uwa.edu.au
3. Visitors Information Centre on 6488 2447

3.12 Services and Facilities

The planning and undertaking of building, alteration and repair work, and the installation and maintenance of plant and equipment, by persons from outside the University needs to be adequately controlled to ensure the safety and health of members of the School. The University has a safety and health policy for contractors. ([http://www.safety.uwa.edu.au/policies/contractor](http://www.safety.uwa.edu.au/policies/contractor))

3.13 General Office Safety

The safety of offices is to be audited annually by the office supervisor, using the Computer Workstation and Office Safety Checklist ([provide link]) as a guide.

Falls are the most prolific cause of injury in offices, accounting for almost half of all office injuries. Next come the handling and lifting of goods, materials and equipment, followed by stepping on, or striking against things; falling objects; machinery; transport; and the use of hand tools. Training in safe handling and lifting is available for any staff likely to lift equipment with any regularity. The maintenance of high standards of general housekeeping in offices goes a long way to preventing injuries. Care should be given to the general layout and storage of items to minimise the possible hazards. Particular attention should be given to: the condition of floors and floor coverings; trailing leads; storage of items, particularly heavy ones, on shelves above shoulder height; safe methods of reaching up.
3.14 Safety off University Premises

Many School activities take place off University premises, including field trips and supervision in isolated areas. Staff and students have a responsibility to identify foreseeable risks and take appropriate action. Relevant aspects might include:

**Field Trips** - adequate competent supervision, including first aid training, appropriate protective clothing and sensible footwear, sufficient communications arrangements, availability of emergency equipment. Tutors responsible for fieldwork should familiarise themselves with the University guidance on fieldwork.

For all field trips a risk assessment must be produced.

Members of staff responsible for the placement of students should familiarise themselves with the University guidance on placement of students (http://www.safety.uwa.edu.au/policies/management_of_student_placement_guidelines).

3.15 Manual Handling

Manual handling is one of the most common and costly of workplace injuries. Manual handling involves the use of human effort to push, pull, carry, hold or restrain any object or animal. It does not just relate to the lifting of heavy objects.

UWA has a policy on manual handling (http://www.safety.uwa.edu.au/policies/manual_handling) which requires areas to undertake risk assessment of all manual handling hazards and implement strategies to reduce the level of risk. This includes but is not limited to the provision of training (http://www.safety.uwa.edu.au/courses/back_care) and ongoing supervision of staff and students involved in manual handling activities.

- No one should undertake any manual handling task that they feel that they are unable to manage, if in doubt, do not do the task, seek assistance. A safety first mentality should be adopted.

- Be aware of the risk factors – the safety of the general environment e.g. is it cluttered, is lighting adequate, are there any slip or trip hazards? The characteristics of the load e.g. heavy, awkward, difficult to grasp. Be mindful of your own ability e.g. fatigue, unwell, lacking in coordination.

- Where possible use assistive equipment, such as trolleys, step ladders and lifting devices. These can be borrowed from the General Workshop.

- Always use correct manual handling technique – keep the spine neutral, bend with the knees using semi squat and avoid twisting, flexing forward with the spine, or sideways leaning of the spine.

Assistance with manual handling risk assessment and training in manual handling technique is provided by the Safety and Health Office, phone ext 2784. Staff are encouraged to phone if they have concerns.

Relying on training of staff is not as effective in reducing manual handling injuries as proper workplace design and provision of equipment—please keep this in mind!
3.16 Safety in the Use of Computer Workstations

Please refer to the UWA brochure “Working Comfortably with Computers” (http://www.safety.uwa.edu.au/policies/working_comfortably_with_computers) and note that the same principles of adopting correct posture at the computer applies to lap tops as well as desk based computer monitors. Be aware that if you are working from home, you should also apply the same principles.

Most people have difficulty checking whether they have correct posture when set up at a computer, even after reading a pamphlet! If needing assistance, or if at any time you start to develop symptoms, please contact the Occupational Therapist in the Safety and Health office. Since there are many computer “ergonomic” accessories on the market, the UWA Safety and Health office provides free trial of equipment. It is a myth to think that using all things that are available will prevent problems, likewise what works for one person may not suit another. A professional opinion Occupational Therapist is warranted if you are having any difficulty with comfort at the computer.

3.17 Working Alone

Where colleagues work after normal hours, they should adhere with the policy on working in isolation. (http://www.safety.uwa.edu.au/policies/isolation)

3.18 Working from Home on UWA Business

Staff must get formal, written approval from the Head of School before working away from home on a regular or extended basis.

Where staff have approval to work from home on a regular and ongoing basis, their manager or supervisor should ensure that they have received all information concerning safety and health and the management of sensitive University information.

The same duty of care applies to staff who work at home on University business, as when they work on-site. This arrangement can have significant repercussions on provision of equipment, at the very least the School/Area is charged with the responsibility of ensuring that the home based workplace is safe.

Staff who work from home on a regular basis should undertake a self-assessment of their working environment in accordance with the UWA working from home policy.

It is the managers and supervisors responsibility to ensure that a formal written agreement is in place to delineate who has responsibility for costs and equipment required to support the working from home arrangement. Please refer to the Working From Home policy.

The Senior Occupational Therapist in the UWA Safety and Health Office is available to provide assessment of home based workplace environments in the event that there are any concerns. Please phone 6488 2784.

3.19 Safety in Workshops and Laboratories

It is the duty of supervisory academic and technical staff to familiarise themselves with the safety and health legislation and Codes of Practice which are relevant to the work being undertaken in their area of responsibility and to ensure that other members of staff and students comply with these requirements.

Refer also to http://www.safety.uwa.edu.au/policies/safety_in_workshops

As part of their day-to-day responsibilities they will ensure that:

- safe methods of working exist and are implemented;
- staff, students and others under their supervision are instructed in safe working practices;
- new employees working within their School are given instruction in safe working practices;
- regular safety inspections are made;
positive, corrective action is taken where necessary to ensure the safety and health of all staff, students and others;

all plant, machinery and equipment in the area in which they work is adequately guarded, regularly maintained and in safe working order;

all reasonable practicable steps are taken to prevent the unauthorised or improper use of all plant, machinery and equipment in the area in which they work;

appropriate protective clothing and equipment, first aid and fire appliances are provided and readily available in the School in which they work;

toxic, hazardous and highly flammable substances are correctly used, stored and labelled;

they monitor the standard of safety and health throughout the unit in which they work, encourage staff, students and others to achieve the highest possible standards of safety and health and discipline those who consistently fail to consider their own well-being or the safety and health of others;

all signs used meet the statutory requirements;

they report, as appropriate, any safety and health concerns to the appropriate person in authority.

All work will be conducted in accordance with the University’s Occupational Safety and Health Policy (http://www.safety.uwa.edu.au/policies/occupational_safety_and_health) and any specific Codes of Practice relating to particular activities and industry specific standards.

General Laboratory Safety Rules

Laboratory safety begins with a safe attitude. The guidelines set out below provide a starting point for planning and maintaining safety in the laboratory.

**Safe Work Practices**

Become familiar with the physical properties and potential dangers of materials you plan to use. The material safety data sheet (MSDS) should be consulted before any new or unfamiliar chemical agents are used. Consider how materials may react in combination.

Consider the limitations of the equipment you plan to use.

Think through any potential hazards associated with your work and plan your response before commencing an experiment.

If in doubt, ask your supervisor for assistance.

Familiarise yourself with the emergency preparedness procedures. Know the location of the nearest emergency shower, eyewash station, first aid kit, firefighting equipment, emergency exits and electrical isolation switches.

Wear the appropriate personal protective clothing and equipment when working in the laboratory.

Laboratory coat or overalls should be worn;

Solid, closed-in shoes, which provide the best protection against materials in use, shall be worn. Sandals or similar open footwear are not permitted in a laboratory or workshop.

The appropriate personal protective equipment (such as safety glasses, protective gloves, respiratory protection and hearing protection) should also be available and worn as needed, or as directed by the laboratory supervisor. Laboratory personnel should be trained in the correct fitting, use, maintenance and storage of personal protective equipment.

It is not advisable to work alone in the laboratory. At the very least, always ensure that somebody knows your whereabouts.

All work involving fumes and/or aerosols must be carried out in an appropriate fume cupboard.

Use a Class II Biosafety cabinet where both personal and product protection is needed.
Pipetting by mouth should not be permitted. Use mechanical aids or similar equipment.

Housekeeping

Do not store or consume food or drink in the laboratory.
Smoking is strictly prohibited in the laboratory and all associated indoor work areas.
Keep corridors and doorways clear. Exercise care when opening and closing doors and entering or leaving the laboratory.
Store flammable liquids in an appropriate flammable liquid cabinet or storeroom.
Secure gas cylinders upright to prevent tipping or falling.
Clean up spills immediately and thoroughly using appropriate equipment and materials. If you are unable to rectify the situation, inform your supervisor immediately. Remember to dispose of all spills and clean-up materials properly, according to the type of waste involved (such as biological, chemical, radioactive or mixed wastes).
Keep the laboratory free from clutter. Clean up work surfaces after each project or at the end of each day including use of appropriate disinfectants for biological work. Ensure that any chemicals, materials or equipment not in immediate use are properly stored.

Planning new work

Additional safety precautions are needed when planning new work. Before undertaking new procedures or beginning work with a new chemical agent, the following points should be considered:

Do not rush into any new work without considering and reviewing safety implications of the procedure and potential hazards of the chemicals to be used. If in doubt about a new procedure, do not use it.
Consult material safety data sheets. If not available, request them from the manufacturer or supplier.
It may be necessary to consult other reference sources to find additional information on, for example, toxicology, chemical reactivity and chemical compatibility.
Review the techniques to be used. Are written standard operating procedures for the method available? If the technique is unfamiliar, consult with your supervisor and experienced colleagues. It may be appropriate to consider performing a practice or “dry run”.
Check that there is sufficient room to arrange all the equipment required, particularly if the operation is to be carried out in a fume cupboard. Ensure that everything around the work area(s), especially other chemicals, is compatible with the chemicals to be used.
Inform colleagues of the work to be carried out and the chemicals to be used. If possible, do not work alone in the laboratory.
Ensure that all equipment is in good operating condition. For example, check glassware for cracks or breaks, check that valves and connections do not leak and check that the fume cupboard is working efficiently.
Know what to do in an emergency - who to contact and where emergency equipment is located (such as fire extinguishers, breathing apparatus, safety showers and eye wash stations).
Check first aid procedures and ensure that any specialised items that may be required are on hand. For example, if hydrofluoric acid is being used, calcium gluconate gel and tablets must be immediately accessible.
Check that all personal protective equipment is the correct type for the work to be performed and that it is in good working order. For example, ensure that the protective gloves to be used are impervious to the chemical(s) involved.
Ventilation of stores

Stores containing volatile and or hazardous chemicals need to be adequately ventilated. Storage for flammable substances must comply with the requirements of AS 1940. Each storeroom should have its own independent mechanical ventilation which is not shared with other storerooms and the exhaust must discharge outside the building well away from air intakes. AS 2982.1 lists the applicable Standards to be consulted for a variety of materials.

Working in isolation

Regulation 3.3 of the Occupational Safety and Health Regulations 1996 requires that if an employee is isolated from other persons because of the time, location or nature of the work then the employer must ensure that there is:

A means of communication available which will enable the employee to call for help in the event of an emergency; and

A procedure for regular contact with the employee and the employee is trained in the procedure.

The maximum penalty for breaching this regulation is $25,000.

There is thus a significant management and supervisory responsibility for preparing and implementing appropriate procedures and for informing, instructing, training and supervising staff and students whose activities may require the need to work in isolation. Each individual is also responsible for taking reasonably practicable steps to ensure their own safety and personal security when working in isolation. All personnel working outside normal work hours must carry appropriate University identification. Security staff are required to request proof of identity from persons they do not know.

The amount of contact required while working in isolation depends on the hazard potential of the work and experience of the individual undertaking the work. A risk assessment should be carried out on the proposed work including the hazards of the proposed activity and consideration of medical conditions, which may give rise to a dangerous or life-threatening situation.

Working alone

For routine office/computer/animal/laboratory type activities:

Notify someone of expected work commencement and completion dates/times.

Undertake personal security measures e.g. lock doors, walk in well lit areas.

Request security personal escort as required.

Where presence of another person is recommended on the floor or in the building

For work involving activities such as those in the following list:

X rays, radioactive sources and radioisotopes.
Exposed, energised electrical or electronic systems.
Large volumes of flammable solvents.
Schedules 4, 7 or 8 poisons.

Work too hazardous to be undertaken alone after normal hours

Some work such as activities in the following list should only be undertaken during normal operational hours when assistance and supervision is readily available:

Hydrofluoric acid.
Explosive and potentially explosive substances.
Disposal of hazardous substances.
Naked flames associated with flammable solvents.
Low temperature environments, e.g. cool rooms.
High powered, fast moving machinery or equipment.
Deep water.
Heights or confined spaces.
Significant quantities of molten metals.

### 3.20 Safety of Equipment

Where equipment related to safety and health, particularly personal protective equipment is provided by the School, there is a duty to ensure the equipment is appropriate for the intended use, clean, properly maintained and properly stored. The University guidance on personal protective equipment should be followed [http://www.safety.uwa.edu.au/policies/personal_protective_equipment_guidelines](http://www.safety.uwa.edu.au/policies/personal_protective_equipment_guidelines).

### 4. Monitoring of the Policy

Day to day monitoring of compliance is the responsibility of all those with managerial responsibility. Managers should also use reports of injury, near misses and sickness linked to work to determine whether existing arrangements require modification in order to prevent a recurrence.

Monitoring the effectiveness of the policy will be carried out by way of planned School/Unit inspections. This follows the University policy on inspecting the workplace [http://www.safety.uwa.edu.au/policies/inspecting_the_workplace](http://www.safety.uwa.edu.au/policies/inspecting_the_workplace).