Faculty of Engineering
The British University in Egypt

Health and Safety Manual

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This manual was prepared by The British University in Egypt Health and Safety Committee, under the supervision of the Chair of the University Health and Safety Committee and the Faculty of Engineering Health and Safety Coordinator. This manual was prepared in accordance with the safety manual of Wolfson School of Mechanical and Manufacturing Engineering at Loughborough University.

Disclaimer
The British University in Egypt (BUE) seeks to be an efficient, effective and modern university, recognized for its high quality excellence centre of education and research.
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Introduction

Safety is the joint responsibilities of all staff both academic and administrative working within the University. Every member of the University, whether staff or student, should be familiar with the contents of this manual and comply with the procedures and practices described. It is unlikely that we will ever eliminate all health and safety risks, but failure to address potential risks or to comply with the requirements of the relevant Health and Safety regulations may result in an elevated accident and incident rates. This manual is composed of 4 chapters, chapter (1), University safety; chapter (2), General safety procedures and regulations; chapter (3), Emergency and evacuation; and finally chapter (4), Risk assessment and control.
Chapter 1
University Safety
1.1 The University Health and Safety Policy

The University Health and Safety Policy (UHSP) describe the general policy of the University and the duties and responsibilities of its employees. The following points summaries the general health and safety policy of the university. These points explain the role of the university with respect to health and safety:

- Ensure that a healthy and safe environment is in place for all students and staff with the help of health and safety committee.
- Provide information through induction and training to staff members and students concerning safe use of equipments to prevent damage of property and reduce accidents.
- Ensure safe use, handling, storage, disposal and transportation of machines and hazardous materials and substances.
- Ensure that laboratories and machines are properly maintained in a timely manner to reduce risk of accidents.
- Ensure that risk assessment for all machines and activities are performed and reviewed periodically and that high risk activities are controlled in a sense to eliminate or reduce risks.
- Ensure that each laboratory or workshop in the University has a first aid kit. This kit should be reviewed periodically to check for expiration.

Signed: ____________________ Date:______________
1.2 The Health and Safety Committee

To carry out the above policy, the university formed a health and safety committee that is composed of a senior academic staff member appointed by the President as chair; the secretary general; one academic staff member from each faculty, nominated by the deans; campus manager; head of security; the president of the students’ union or his/her nominee from the students’ union; and the university lawyer. The committee shall meet at least twice per year. The role of this committee is to:

1) Promote a positive health, safety and environmental culture, enabling staff, students and managers to contribute to ensuring effective arrangements to protect their health, safety and welfare, as well as that of visitors to the campus. This may involve promoting the inclusion of health, safety and environment topics into the curriculum.

2) Review, monitor and develop the University’s health and safety policy with the aim of controlling risks and continually improving health and safety standards throughout the university.

3) Monitor the success of the university’s health and safety activities and provision and review their effectiveness.

4) Consider new and existing legal requirements and UK norms on health and safety matters, assess their implications for BUE, and recommend action to be taken to ensure compliance.

5) Oversee the management of risk arising from teaching, research and other activities.

6) Recommend the allocation of necessary resources to support the health and safety objectives and obligations and departmental requirements as necessary.

7) Arrange the provision of appropriate information, instruction and training for staff and students where necessary to ensure their health, safety and welfare, including the provision of first aid officers and building fire marshals.

8) Report to the Executive Group and other University Committees, as deemed appropriate.

1.3 Health and Safety Guidelines:

All work carried out within the Faculty of Engineering must be within University Health and Safety guidelines as follows:

1) Students will not be allowed to work in non-computer laboratories unless supervised by a member of staff.

2) Personal protective clothing should be provided by the student. Heavy shoes and an overall or laboratory coat must be worn in workshop areas.

3) Students are warned that long hair and loose sleeves can catch in rotating machinery. Hair should be tied back and loose clothing secured. Jewelry, including watches, rings and necklaces must not be worn in workshop or laboratory areas.
4) Laboratory coats or overalls should be worn where students and researchers are observing or working on small laboratory equipment.

5) First aid is available through a number of trained personnel.

6) Anyone NOT working to workshop and laboratory guidelines and practices will be expelled from the area.

7) Students with medical conditions, e.g. deafness, asthma, should notify the laboratory supervisor at the start of the practical session.

8) Students must wear “sensible” clothing bearing in mind the types of hazard they face.

9) Strong footwear must be worn in places where heavy objects may be dropped.

10) Students must treat all equipment seriously and assess potential hazards before using any machine or apparatus (if in doubt, ask).

11) Students must make themselves familiar with all exits from laboratories and workshops and note where fire extinguishers and other remedial equipment such as eyewash are located. They should also note the names of qualified first aiders and know where they can be found and be familiar with evacuation procedures and assembly points.

12) Floors must be kept clear of loose objects and cables.

13) Where lifting equipment is provided, use it. If anything appears at all heavy to lift, advice and help must be obtained from technical staff.

14) Keep use of flammable liquids to the minimum required for the job.

15) Return all flammable liquids to the designated store immediately after use.

16) Do not hold flammable liquids in open trays or vessels on benches or floors. This may lead to a buildup of vapour and risk of explosion.

17) In the event of a spillage, remove any affected clothing, isolate electrical equipment in the general vicinity and extinguish other sources of potential ignition, use spill kits provided and open doors and windows to allow vapour to disperse.
1.4 Health and Safety Prohibitions:

The following prohibitions are given to students and staff of the Faculty of Engineering whilst using any laboratory or workshop:

1) Do not commence any laboratory or workshop session until you learn about the degree of risk involved.

2) Never start a machine until you fully understand how to stop it and how to use it. If in doubt, ask.

3) Smoking and consumption of food and drink in laboratories is strictly forbidden.

4) Never use a machine if alone in a laboratory.

5) Never oil, grease, clean or remove objects while a machine is in motion. Never remove objects with your hands.

6) Never idly play with knobs on instruments or machines.

7) Never make adjustments whilst machines are in motion.

8) Never put a finger into a rotating small hole, particularly a threaded one. Never climb onto, or lean over, moving machinery.

9) Never leave a machine unattended whilst it is running.

10) Never try to catch a job if it starts to rotate on a drilling machine, concentrate on stopping the machine.

11) Never adjust tool resets whilst grinding wheels are in motion. Never apply excessive pressure whilst side grinding.

12) Never strike a grinding wheel with a side bar.

13) Never work inside electrical equipment with the power on. A qualified person should make all electrical connections.

14) Never stand on a wet floor when using electrical equipment.

15) Never leave loose objects or tools protruding from a vice, bench or machine.

16) Never let loose objects remain on the floor, even if you did not put them there, they can be a hazard.

17) Never use a file without a handle.
18) Never operate or observe machining, grinding, casting, welding without appropriate eye protection.

19) Always remove chuck keys from machine chucks immediately after use.

20) Always ensure guards are correctly used and adjusted.

21) Always ensure work pieces are firmly held to the table when milling or grinding. Always use eye-shields, safety specs, goggles or visors when the occasion arises.

22) Always use correct industrial gloves when removing object, handling rough material, working with furnaces and welding. If in doubt, ask.

23) Always keep space around machines free from oil, grease and object.

24) Always use the correct way to lift, i.e. feet together, chin and elbows in, knees bent, back straight, lift by straightening knees.

25) Always use gloves when in dirty environments. Always thoroughly wash hands after task to prevent dermatitis infection.

26) Always ensure that all electrical equipment has an attached test certificate before use.

1.5 Induction of New Staff and Students
All new staff and students will receive a health and safety induction on arrival to the Faculty. This induction will draw their attention to the UHSP and the Faculty health and safety manual.

1.6 Risk Assessment
Where a new hazard may arise, for example when new equipment is installed or a new experimental technique developed, a risk assessment must be undertaken. This process seeks to ensure that potential risks are identified and that suitable controls and procedures, etc., are put in place to minimise those risks. The procedure for risk assessment is given in Chapter 4.
Chapter 2

General Safety Procedures and Regulations
2.1 Safety Procedures

A number of procedures and codes of practice have been developed for the faculty’s specific circumstances. These fall into two categories, those applying generally to all areas of the faculty and those specific to particular work areas.

First aid, accidents and dangerous incidents

Any injury, however minor, must be formally recorded using the incident/accident form held by the faculty’s health and safety coordinator and then brought to the attention of the university health and safety committee. Dangerous incidents, such as “near misses”, should also be brought to the attention of the faculty health and safety coordinator, who will notify the health and safety committee. Near misses are often a sign that procedures, safety equipment or training are inadequate to safeguard against accidents and should not be dismissed.

Fire precautions

Fire doors must not be prevented from opening under any circumstances. Fire doors are designed to provide time for occupants to escape in the event of fire. Familiarise yourself with the means of escape from your work area and the location of the correct assembly point in the event of an evacuation. Guidance on the evacuation is also given in Chapter 3.

General housekeeping

All staff and students are expected to keep their work areas clean and tidy. All rubbish must be disposed of promptly and appropriately. Experiments or equipment assembly must not take place in offices (use an appropriate laboratory area). Materials must be properly stored.

Equipment procurement and installation

All equipment purchases must be brought to the attention of the campus manager, who will arrange for security marking, and the electrical test engineers, who will assess the testing requirements and perform appropriate tests. A risk assessment must also be undertaken where appropriate.

Waste disposal

The caretakers remove general office waste daily. Large items, which will not fit in baskets, should be brought to the attention of the caretaking staff or marked as scrap. Paper for recycling is held in designated bins, which are emptied as required. If a bin is becoming full then notify the caretaking staff or campus manager before it becomes
dangerous or too heavy to move.

**Electrical safety**

Electrical inspection and testing procedures fall into two categories, user checks during normal equipment usage and formal testing by the Faculty’s test engineers. A qualified test engineer carries out formal testing. No electrical equipment, even if privately owned, may be used unless it bears the appropriate in-date electrical test label. Electrical hazards are also associated with electrical construction and maintenance.

**Pressure systems and gas bottles**

All users of pressure systems must be familiar with the appropriate regulations and procedures. Pressure systems are subject to regular inspections by the insurers. No unauthorized modifications may be made to pressure systems. Gas bottles must be transported using an appropriate trolley and appropriately secured in a rack or by straps to the wall, when not in transport.

**2.2 Manual Handling Operations Safety**

**Employers must:**

Avoid the need for hazardous lifting and handling if reasonably practicable, assess the risk of injury from any hazardous manual handling which cannot be avoided and reduce the risk of injury accordingly.

**Staff and students must:**

Follow safe systems of work laid down by the Faculty. Use mechanical aids provided by their Faculty properly. The unsafe movement of goods by hand, either by lifting or handling, causes more accidents and ill health than any other activity. Back, hand, arm, shoulder, and neck injuries are the most common in repetitive work. Cuts and abrasions from sharp edges are numerous, often resulting in infected wounds, dermatitis, amputations and fractures. Sheet metal either flat or coiled, heavy sharp items, tools and cutters, scrap metal and object, cause the most risks.

**Reducing the Risks**

Use personal protective equipment such as gloves, but only where these do not add to the other risks from machinery. Store objects correctly so that they are retrieved easily. Minimize handling. Use lifting or carrying aids where possible and seek assistance from others.
Lifting Safely

- Position the feet to provide a stable base.
- Try to keep the arms within the boundary.
- Always plan a lift and consider where the load should be placed.
- Use appropriate handling aids.
- Whenever needed, seek help with the load.
- Remove obstructions, i.e. discarded wrapping materials, and check for insecure packing. For a long lift, such as floor to shoulder height, consider resting the load mid-way on a table or bench in order to change grip.
- Adopt a good posture formed by the legs.
- Keep the load as close as possible to the trunk for as long as possible.
- Lift smoothly and do not twist the trunk when turning to the side.

2.3 Moving Vehicles Safety

Lorries, vans, cars, forklift trucks, and other vehicles are involved in many accidents. Most accidents are caused when reversing and manoeuvring in or near workshops where confined spaces are found and pedestrians are present. Forklift trucks have additional risks associated with speed, overloading, or poorly secured and stacked loads. Main injuries are: being crushed, and falls as a result of climbing on vehicles. Risk of moving vehicles can be reduced as follows:

- Identify and mark safe routes, and locations for deliveries.
- Keep away from pedestrians as much as possible.
- Keep routes in good condition and well lit.
- Keep routes clear with easily seen low speed limits.
- Make sure drivers are trained.
- Avoid reversing or help drivers with a guide.
- Avoid climbing on vehicles if possible
- Avoid poor roadways

2.4 Controlling of Substances Hazardous to Health (COSHH)

Assess the risk to health. Prevent exposure by using a less hazardous substance, or a different process. If prevention is not reasonably practicable, control exposure by isolating and enclosing a process or using exhausts ventilation systems. If prevention is insufficient on its own, provide personnel protective equipment to be used. Inform, instruct and train users. Carry out monitoring where necessary. A hazard may be defined as something that can cause harm. The control of dust, fumes, spray and vapor, and the prevention of skin contact by adequate personal protection, will minimize the risk of adverse health effects. All substances and chemicals in the Faculty have to be assessed and a safety data sheet should be produced. The disposal of substances is legally controlled. All used materials should be labeled and stored for disposal by area supervisors in designated and controlled locations. Never Dispose any Substance into The External Drains.
2.5 Machinery Setting, Operating and Maintenance Regulations

Most accidents on machines happen to operators during normal operation when loading and unloading components, removing object, taking measurements and making adjustments (to the coolant supply in particular). Automatic machinery accidents mostly happen during controlled movement of clamps, axes, tables, object removal equipment, chucks and handling equipment. The most dangerous machine movements are the rotating, cutting, shearing, sawing, or pressing movements of tools, particularly on Presses, drilling machines, milling machines, lathes, metal cutting saws, and grinding machines.

Hands are the most frequently injured, cuts and abrasions are often severe. Broken bones, dislocations, or amputation are frequent. Eye injuries are also common. Back injuries and upper limb disorders arise through handling. Skin irritation may occur from contact with metalworking fluids. Irritation of eyes, nose, throat, occasionally occur due to breathing problems from fumes and oil mists. High noise levels during high speed cutting, impact machines or groups of machines running together may result in hearing problems.

Employers must ensure that: Suitable equipment is provided for the jobs involved; information and instruction are adequate; equipment is maintained in good working order and repair; training is provided for operators and supervisors; equipment is safeguarded to prevent risks from mechanical and other specific hazards; equipment is provided with appropriate and effective controls; maintenance is carried out safely; risk assessments are undertaken for all activities performed on this equipment.

2.6 Personal Protective Equipment (PPE)

Employers must provide suitable PPE free of charge to protect employees against risks which have not been controlled by other means and should take all steps to ensure it is properly used. Before providing PPE, the employer assess risks to Health and Safety which have not been avoided by other means and define the characteristics which PPE must have against those risks.

Employees must use PPE provided and report any loss or obvious defect. Commonly used PPE are for hand protection, eye protection, respiratory protection, ear protection, and foot protection.

Welding fumes may cause dryness of the throat, coughing, tightness of the chest and difficulty in breathing, an acute flu-like illness (metal fume fever), poisoning, or long term changes in the lung.

To avoid welding risks, use safer filler materials such as cadmium free silver solder, provide local exhaust ventilation; ensure workshops areas have enough low level inlets and high level outlets for air; and provide respiratory protective equipment but only if
control measures are unable to reduce fumes to safe levels.

2.7 Building and the Environment

Lighting

It is the employer responsibility to provide good level of lighting – use natural light where possible but try to avoid glare.

**General workshop and assembly**

<table>
<thead>
<tr>
<th>Average</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 lux</td>
<td>50 lux</td>
</tr>
</tbody>
</table>

**Work requiring perception to detail**

<table>
<thead>
<tr>
<th>Average</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 lux</td>
<td>100 lux</td>
</tr>
</tbody>
</table>

**Visual fatigue working in fine detail**

<table>
<thead>
<tr>
<th>Average</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 lux</td>
<td>200 lux</td>
</tr>
</tbody>
</table>

Ventilation and Temperature

Laboratories should be maintained at a reasonable temperature and provided with a thermometer. The temperature should be between 15°C and 30°C. Fans and additional air inlets should be used to bring the temperature within the boundaries and to provide proper ventilation where the workplace provides airborne pollutants.

Local Exhaust Ventilation

LEV is a frequently used way of controlling exposure to hazardous substances by drawing them away from the breathing zones of the staff and students into a hood and ductwork connecting to an external fan.

Noise

Too much loud noise damages hearing by causing deafness or permanent loss of hearing. If you cannot hear clearly what someone is saying (in a normal voice) 2 m away, the noise level is likely to be 80 dB(A) or higher. Typical minimum noise levels next to operations where no steps have been taken to reduce noise are as follows:

**83-95 dB(A)**

Air exhausting from pneumatic equipment, and general noise in fabrication shop.

**90-100 dB(A)**

Grinding, and hammering steel.
95-110 dB(A)
Multi-spindle automatic turning, circular sawing, metal pressing, blanking.

110-120 dB(A)
Punch pressing, riveting.

For most jobs, the risk depends not only on the noise levels but for how long people are exposed to the noise.

Reducing Noise: Reduce time of exposure; enclose machinery when safe to do so; provide quiet rest/break room to avoid breaks taken at/near machines. Action to be taken where personal daily exposure is likely to be:

Employers must:
- Reduce the risk of hearing damage to the lowest level reasonably practicable.
- Have noise levels assessed by a competent person.
- Keep records of assessment until new one is made.
- Reduce exposure to noise as far is practicably possible by means other than ear protectors.
- Provide information, instruction and training to employees.
- Ensure, so far as is practicable, that ear protectors are:
  - Provided to all who ask for them.
  - Provided to all exposed.
  - Maintained and repaired.
  - Used by all exposed.

Employees must, as much as possible:
- Use ear protectors
- Use any other protective equipment.
- Report any defects.

Vibration

Vibration White Finger, known as dead finger or dead hand, is widespread in workshops. Attacks are painful and can result in the loss of the ability to grip properly. The most common causes are work with hammer, or chisel, powered metalworking tools, hammer for riveting, clinching and flanging, pedestal and hand-held grinding and polishing machines.

In addition, any regular prolonged use of any high vibration tool or machine which causes tingling or numbness after five to ten minutes is a possible cause.

Minimize Harm

Identify hazards, have symptoms investigated further by someone able to assess them
medically, and consider changing the processor product design to eliminate or reduce the use of vibrating machinery.

**Supply of drinking water**
An adequate supply of drinking water needs to be provided for all persons at work, and this supply should be readily accessible.

**Smoking**
A clear policy on smoking should be drafted, communicated to all staff and their representatives, and include any disciplinary measures to back them up. The policy is a matter for the employer to decide upon, although an outright ban may cause problems.

**Seating**
It is required that seating provided for employees at workstations should, where possible, meet the following specifications:
- Chairs should be stable and capable of full adjustment to suit the operator
- The backrest must provide adequate support for the lower back
- A footrest should be provided on request for any worker who cannot comfortably place his / her feet flat on the floor.

**Food and beverages**
All employees who work in serving food or beverages to staff or students should periodically have medical checkups.

### 2.8 Fire Precautions

**Hazards**

Gases, flammable liquids, dust explosion, boilers or ovens, oxygen-rich atmosphere, electrical fault, welding and cutting processes, foundry and casting processes can cause fire to occur.

**Risk Reduction**

During operations that increase the possibility of fire, ensure that the correct type of extinguishers are available, or in the case of maintenance, have a second person to act as a lookout. Fire blankets can also be used as a successful first line of defence.
### Types of Extinguishers

<table>
<thead>
<tr>
<th>Fire Class</th>
<th>Type of Fire</th>
<th>Extinguisher Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Solid materials such as wood, plastics, textiles, and their products: paper, housing, clothing.</td>
<td>Foam, water, dry chemical</td>
</tr>
<tr>
<td>B</td>
<td>Flammable liquids and gases.</td>
<td>Dry chemical, bromotrifluoromethane, and other halogenated compounds, foam, CO₂, dry chemical</td>
</tr>
<tr>
<td>C</td>
<td>Electrical (referring to live electricity situations, not including fires in other materials started by electricity).</td>
<td>Bromotrifluoromethane, CO₂, dry chemical</td>
</tr>
<tr>
<td>D</td>
<td>Combustible, easily oxidized metals such as aluminum, magnesium, titanium, and zirconium.</td>
<td>Specialized powders such as graphite, sand, limestone, soda ash, sodium chloride</td>
</tr>
</tbody>
</table>

### Emergency procedures in case of fire:

Sound the alarms to evacuate the building in case of fire. Use emergency telephone to request help (Call the industrial safety office at 1349, the security manager at 1397, or the campus manager at 1391). Leave the building and go to the assembly location stated in the evacuation plan. If it is dangerous to make a telephone call from the area of the fire, an alternative telephone located in the next building should be used. Evacuation procedures are given in Chapter 3.

### 2.9 Safety signs

In practice safety signs are divided into five categories as follows:

- Prohibition
- Fire-fighting equipment
- Warning
- Mandatory action
- Safe conditions
Chapter 3

Emergency and Evacuation
3.1 Emergency Procedures

Emergencies do happen but anticipating emergencies and planning your response can greatly lessen the extent of injuries and limit equipment, material and property damage. None of us knows how we will respond to a real emergency until we have actually had the experience. Nevertheless, rush and panic can cause more danger for everyone than an orderly withdrawal. Try to be aware of the needs of other people around you, and in particular try to recall if you have recently been conscious of anyone who is particularly vulnerable in this kind of emergency. You may be near enough to help, but don’t recklessly put yourself in danger.

Developing emergency procedures

The main objective of the emergency procedures is to provide a safe environment for employees during an emergency and to limit the loss of property. There should be a prepared plan spelling out a course of action that directs personnel in acting immediately and correctly in all types of emergencies.

Although the plan does not have to be all-inclusive, it should provide appropriate guidance on what to do in an emergency as follows:

- Clear, written policies that designate a chain of command, listing names and job titles of the people who are responsible for making decisions, monitoring response actions and returning operations back to normal. Once an emergency occurred that needs evacuation, contact the industrial safety office at 1349, the security manager at 1397, or the campus manager at 1391.
- Specific instructions for shutting down equipment and production processes, and for stopping business activities. All equipments should have their emergency button designated to be easily accessed during emergency.
- Evacuation procedures, including a designated assembly point outside the workplace and a process to account for all employees, and others, after an evacuation.
- Specific training and practice schedules and equipment requirements for employees who are responsible for rescue operations, medical duties, hazardous responses, firefighting and other responses specific to the workplace.
- Campus manager should inform the university clinic and the first aiders about the emergency situation and seeks help if needed.

First aid requirements

First aid is the immediate and temporary care given to the victim of an accident or illness until the services of a qualified medical practitioner can be obtained. Besides saving lives and minimising the consequences of an injury, it can also deal with the treatment of minor injuries that would not receive or do not need medical attention. Risk assessments must be carried out to determine the level of protection needed. The minimum
requirement is for a first aid box and an “appointed person”.

Role and training of first aiders and other personnel

A first aider is someone who has been trained to administer first aid appropriate to hazards of the particular workplace. Although it is not a legal requirement it is likely that all workplaces will need at least one qualified first aider. The role of first aiders is to provide initial assistance to the victim whilst awaiting the medical services. They should never administer treatment for which they have not been trained. Such actions that they may need to take are: preventing any serious loss of blood; maintaining breathing; attending to burns; preventing shocks; dealing with localised injuries, such as those to the eye.

First aid facilities

All workplaces must have, suitably stocked, a first aid kit as well as other facilities appropriate to the users of the workplace. This includes not only staff and students but also contractors, visitors and members of the public.

First aid boxes: First aid boxes should be strategically sited in relation to the work area and should be obviously marked. If possible they should be sited in good lighting and near a washbasin. The person in charge of the box or cabinet should ensure the box is kept properly stocked and in a clean, serviceable condition. A record should be kept of all cases treated and an accident log (Appendix C) should remain in each box or cabinet for this purpose. Note that medicines and tablets should not be included since these may only be dispensed by qualified medical personnel.

Arrangements for contacting emergency and rescue services

Part of the response to an emergency is likely to include taking some action such as fire-fighting, shutting down equipment or first aid, but it is important to clearly set out the limits of such actions to be taken by employees and stress the need to bring in specialised assistance at the earliest opportunity. The procedure should identify individuals or groups with specific responsibilities in the event of an emergency. Once an emergency occurred that needs evacuation, contact the industrial safety office at 1349, the security manager at 1397, or the campus manager at 1391, and brief them on the nature of the incident and any special problems / hazards they may face.

3.2 Procedure for the Management of Evacuation

All documentation necessary at the time of evacuation and for routine testing will be kept in a safe located below the alarm control and the access code is known to all trained personnel.
Alarm testing
The alarm will be tested 12:00 noon the first Sunday of every Month. A copy of the test operation is kept in the fire safe and all tests shall be recorded in the records kept in the safe and in the security and campus manager’s office.

Evacuation procedure
On activation of the alarm of the building affected, the industrial safety office will make their way to the panel to investigate the origin of the alarm, clearing their section on the route to the control point. The industrial safety office should send someone to the control point who will take responsibility for managing the evacuation, concentrating on the location of the alarm. The office should also inform the security/campus manager (if not already informed) of the situation and seek help from them (if needed).

There should be a group of marshals in each building whom all the people should follow during evacuation. The marshals are well trained on the best way to exit the building. These marshals should be easily identified by a red or yellow hat or sign. Evacuation should be made to a meeting point safely enough to be located outside the building.

The marshals’ responsibilities are as follows:
1) Ensuring all members of staff (and other persons on the premises, including the general public in the case of shops and public buildings) leave by the designated escape route.
2) Searching all areas, including toilets, to ensure that the area is clear.
3) Ensuring that escape routes are kept open and clear at all times.
4) Ensuring all doors and windows are closed on leaving the area.
5) Conducting the turn round call at the assembly area.
6) Meeting the fire brigade on arrival and informing them of all the relevant details.

Responsibilities of industrial safety office during evacuation
1) Check alarm panel for type and location of alarm.
2) Identify the person responsible for the call
3) Alert security that you are investigating, giving initial details.
4) If no details are available from people leaving the building, ask two security people to investigate. Allocate them a two-way radio, check the sets are operational, and warn them not to put their own lives in danger – look for the smell of burning or for hot surfaces, never open a door into a fire.
5) Record any injured people and number of casualties
6) Allocate security people to the assembly points to maintain a safe distance from the building.
7) Clear people waiting in vehicles next to the building.
8) Make sure disability needs are managed.
9) As details come in to the control point, they should keep security up to date.
10) If the evacuation is identified as a false alarm, inform security, terminate alarm, instruct marshals to allow people back into the building.
11) Record event in the incident/accident log kept in the campus manager office.
Emergency evacuation for disabled persons:

Disabled people in wheelchairs should almost always be evacuated in their chairs. If not, there is the immediate practical problem of where to put the person when they are out if the chair has been left behind. Much more seriously, however, there are staff/students with metal spinal implants, or other conditions, which would cause them actual physical injury if they were improperly lifted. They are safer remaining in the chair. Incidentally, the best way of ascertaining the needs of individual disabled people is to ask them.

In single story buildings there is of course little problem, as long as the exits are clear. The problems begin when the evacuation has to be made from an upper story. For anyone other than a lightweight person in a manual wheelchair, lifting the chair is a major challenge not to be taken lightly. It would generally require four persons to do this without risk of injury to the porters or their passenger. This would inevitably raise further problems of space and co-ordination if it were to be carried out successfully. Unless imminent danger makes this essential, such an evacuation may be best left to the rescue service.
Chapter 4

Risk Assessment and Control
4.1 Guidance on Risk Assessment

Introduction

The following guidance is aimed at helping people carry out general risk assessments in the workplace. A risk assessment is an important step in protecting the health and safety of staff, students and visitors. It helps you focus on the risks that really matter in the workplace, the ones with the potential to cause real harm. We did not expect all risk to be eliminated, but we are required to protect people at work as far as reasonably practicable. This guidance tells you how to achieve that with a minimum of effort. This is not the only way to do a risk assessment, there are other methods that work well, particularly for more complex risks and circumstances. However, this method is straightforward, easy to follow and its use is strongly recommended.

What is risk assessment?

A risk assessment is simply a careful examination of what, in your work, could cause harm to people, so that you can weigh up whether you have taken enough precautions or should do more to prevent harm. Workers and others have a right to be protected from harm caused by a failure to take reasonable control measures. Accidents and ill health can ruin lives and affect the business of the University. The University, as an employer is required to assess the risks in the workplace so that plans can be made to control those risks. Departments and support services complete risk assessments internally, with input from the faculty health and safety coordinator when required, or, where specialist input is needed.

4.2 How to Assess General Risks in the Workplace

Follow the five steps in this guidance:

**Step 1:** Identify the hazards
**Step 2:** Decide who might be harmed and how
**Step 3:** Evaluate the risks and decide on precautions
**Step 4:** Record your findings and implement them
**Step 5:** Review your assessment and update if necessary

Do not overcomplicate the process. Many risks are well known and the necessary control measures are easy to apply. It is probably already known, if you are confident and you understand what is involved, you can do the assessment yourself. You don’t have to be a health and safety expert to do so. You could also ask your department/faculty health and safety coordinator to help you. If you are not confident, get help from someone who is competent. In all cases, you should make sure that you involve staff or their representatives in the process. They will have useful information about how the work is done, that will make your assessment of the risk more thorough and effective.
When thinking about a risk assessment, remember:

A hazard is anything that may cause harm, such as chemicals, electricity, working from ladders, a trailing cable on the floor etc; the risk is the chance, high or low, that somebody could be harmed by these and other hazards, together with an indication of how serious the harm could be.

Step 1: Identify the hazards

First you need to work out how people could be harmed. When you work in a place every day, it is easy to overlook some hazards, so here are some tips to help you identify the ones that matter:

- Walk around your workplace and look at what could reasonably be expected to cause harm.
- Ask members of staff or their representatives what they think. They may have noticed problems that are not immediately obvious to you.
- Check manufacturer’s instructions for equipment / machinery, or data sheets for chemicals as they can be very helpful in spelling out the hazards and putting them in their true perspective.
- Have a look back at your accident and ill-health records, these often help to identify the less obvious hazards.
- Contact any trade association(s) you may be affiliated to.
- Remember to think about long-term hazards to health, (e.g. repetitive strain injuries), as well as safety hazards.

Step 2: Decide who might be harmed and how

For each hazard you need to be clear about who might be harmed. It will help identify the best way of managing the risk. That doesn’t mean listing everyone by name, but rather identifying groups of people. In each case, identify how they might be harmed, i.e. what type of injury or ill-health might occur. For example, store-men may suffer back injuries from repeated lifting of boxes’. Remember:

- Some workers have particular requirements, e.g. new and young workers, new or expectant mothers and people with disabilities may be particularly at risk.
- Extra thought will be needed for some hazards.
- Cleaners, visitors, contractors, maintenance workers etc., who may not be in the workplace all the time.
- Members of the public, if they could be hurt by your activities.
- If you share your workplace, you will need to think about how your work affects others present, as well as how their work affects your staff.
- Ask your staff if they can think of anyone you may have missed.
Step 3: Evaluate the risks and decide on precautions

Having spotted the hazards, you then have to decide what to do about them. It is required to do everything reasonably practicable to protect people from harm. You can work this out for yourself, but the easiest way is to compare or “benchmark” what you are doing, with good practice. Always ask yourself the following:

- Can I get rid of the hazard altogether?
- If not, how can I control the risks so that harm is unlikely to occur?
- When controlling risks, apply the principles below, if possible in the following order:
  1. Try a less risky option (e.g. use a machine that vibrates less than the former);
  2. Prevent access to the hazard (e.g. by guarding).
  3. Organise work to reduce exposure to the hazard (e.g. put barriers between pedestrians and traffic).
  4. Issue personal protective equipment (e.g. clothing, footwear, goggles, ear defenders etc.).
  5. Provide welfare facilities (e.g. first aid and washing facilities for removal of contamination).
  6. Involve staff, so that you can be sure that what you propose to do will work in practice and won’t introduce any new hazards.

Step 4: Record your findings and implement them

Putting the results of your risk assessment into practice, will make a difference when looking after staff, students and visitors. Writing down the results of your risk assessment, and sharing them, encourages you to do this. This is shown in the risk assessment form below. Risk assessments should be accessible to anyone wishing to see them and to those that are liable to be affected. The conclusions of the risk assessment and controls must be clearly communicated to those at risk. It may be appropriate to display the risk assessment adjacent to the equipment or experiment concerned.
To explain the above generic form of risk assessment, consider the following:

(1) **Date**
Insert the date that the assessment form is completed

(2) **Assessed by**
Insert the name and signature of the assessor

(3) **Checked/Validated by**
Insert the name and signature of someone in a position to check/validate that the assessment

(4) **Location**
Insert details of the exact location

(5) **Assessment ref. no.**
Use this to insert any local tracking references used by the department or support service (to be filled by the Safety Committee)

(6) **Review date**
Insert details of when the assessment will be reviewed as a matter of routine

(7) **Task / premises**
Insert a brief summary of the task or premises

(8) **Activity**
Use the column to describe each separate activity covered by the assessment

(9) **Hazard**
For each activity, list the hazards

(10) **Who might be harmed and how**
Insert everyone who might be affected by the activity and specify groups particularly at risk

(11) **Existing measures to control the risk**
List all measures that already mitigate the risk

(12) **The likelihood and the severity should follow the below measures:**
(13) Result
- **A = adequately controlled**, no further action necessary
- **N = not adequately controlled**, actions required
- **I = Immediate action**, actions should be taken, the activity should be closed until hazard reduced.
- **U = unable to decide.** Further information required

For **A results**, the assessment is complete.
For **N, I, or U results**, more work is required before the assessment can be signed off

To fill column (13) above, a risk assessment matrix should be used that has many forms, the British University in Egypt Health and Safety committee agreed to the use the one below:

<table>
<thead>
<tr>
<th>Risk Score</th>
<th>Symbol</th>
<th>Risk</th>
<th>Color</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 7</td>
<td>A</td>
<td>Low Risk</td>
<td>Green</td>
<td>No Further Action</td>
</tr>
<tr>
<td>8-14</td>
<td>N</td>
<td>Medium Risk</td>
<td>Yellow</td>
<td>Action required</td>
</tr>
<tr>
<td>15-25</td>
<td>I</td>
<td>Immediate action required</td>
<td>Red</td>
<td>Immediate action required and activity should be closed until hazard reduced</td>
</tr>
</tbody>
</table>
Additional controls
If existing controls are inadequate
A good plan of action often includes a mixture of different things such as:
- A few cheap or easy improvements that can be done quickly, perhaps as a temporary solution until more reliable controls are in place.
- Long-term solutions to those risks most likely to cause accidents or ill health.
- Long-term solutions to those risks with the worst potential consequences.
- Arrangements for training employees on the main risks that remain and how they are to be controlled.
- Regular checks to make sure that the control measures stay in place.
- Clear responsibilities – who will lead on what action, and by when,

Remember, prioritise and tackle the most important things first. As you complete each action, tick it off your plan.

Step 5: Review your risk assessment and update if necessary

Few workplaces stay the same. Sooner or later, you will bring in new equipment, substances and procedures that could lead to new hazards. It makes sense, therefore, to review what you are doing on an ongoing basis. Every year or so formally review where you are, to make sure you are still improving, or at least not sliding back.
Appendices
APPENDIX A

ACCIDENT/INCIDENT REPORT

Date of incident: _______________ Time: _______ AM/PM

Incident Number (to be filled by the Industrial Safety Officer) ____________
Name of injured person: ________________________________________________
Address: _____________________________________________________________
Phone Number(s): _____________________________________________________
Date of birth: _______________ Male _____ Female ______

Who was injured person?     Student     Staff     Other __________

Type of injury: _______________________________________________________

Details of incident: ____________________________________________________
____________________________________________________________________
____________________________________________________________________

Injury requires physician/hospital visit?   Yes ___    No _____

Name of physician/hospital: _____________________________________________
Address: ___________________________ _________________________________

Physician/hospital phone number: _______________________________________

Signature of injured party _____________________________________________ Date

Signature of the Industrial Safety Officer ___________________ Date

Return this form to Industrial Safety Office within 24 hours of the incident.
Appendix B

Near Miss Form

A near miss is a potential hazard or incident that has not resulted in any personal injury. Unsafe working conditions, unsafe employee work habits, improper use of equipment or use of malfunctioning equipment have the potential to cause work related injuries. It is everyone’s responsibility to report and/or correct these potential accidents/incidents immediately. Please complete this form as a means to report these near-miss situations.

Department/Location ________________________________

Date: ____________________ Time ___________ am pm

Please check all appropriate conditions:

 o Unsafe Act
 o Unsafe equipment
 o Unsafe Condition
 o Unsafe use of equipment

Description of the near-miss condition:

________________________________________________________________________
________________________________________________________________________

Causes (primary and contributing)

________________________________________________________________________
________________________________________________________________________

Corrective action taken (Remove the hazard, replace, repair, or retrain in the proper procedures for the task)

________________________________________________________________________
________________________________________________________________________

Employee Signature (optional) ___________________________ Date __________________

Health and Safety Committee Action __________ Date __________________________
Appendix C

First Aid Log

<table>
<thead>
<tr>
<th>Name and Age</th>
<th>Date and Time</th>
<th>Activity</th>
<th>Location</th>
<th>Treatment Given</th>
<th>Caregiver</th>
<th>Injury</th>
<th>Prioritization</th>
<th>Time Released</th>
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