Appendix B WHS Hazard and Risk Assessment Template

	Static Risk Assessment No.	Assessment Date	Review by Date	Version
	Dynamic RA	**16/06/2023**	*16/12/2023*	**V1.0 16/06/2023**

Name of the Task/Activity/Area/Hazards to be assessed	**ENGN1218 (Introduction to Electronics)** **Hardware Lab Classes Semester 2 2023** **Convener: Dr. Salman Durrani**	**Top Residual Risk (L, M, H, E)** **Medium**
Detailed description of the activity/task & location	ENGN1218 2023 Hardware Labs in the Ian Ross R105 Electronics Teaching Lab. Based on information from the Course Convener activities may include: - Construction and testing of electronic circuits on breadboards. Use of pliers, cutters and wire strippers. Use of test equipment and test probes on live extra low voltage electronic circuits. - Circuits may use polarised capacitors (like electrolytic). - Some labs have soldering activities. - Some labs use Moku:lab devices.	
School/Service Division	School of Engineering	

Location and Supervisor	**Location**	Brian Anderson Building (115)	**Supervisor**	Dr. Salman Durrani	**Ph**	61256573
Risk Assessment Team Have you completed ANU WHS Risk Management Training? ☒ Y ☐ N **IF NO, DO NOT PROCEED**	**Name**	Erasmo Scipione	**Email**	**erasmo.scipione@anu.edu.au**	**Ph**	61259067
	Name	Xianjun Zheng	**Email**	**xianjun.zheng@anu.edu.au**	**Ph**	61254485
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	Name		**Email**		**Ph**	

Who will be affected by this RA?	☐ All people in the location ☒ A group/s of people (list below) ☐ A single person (list below)
Who will be consulted on this RA? (All persons affected or their representatives needs to be consulted)	*List the names of people who are consulted – Mandatory unless there is only 1 person affected* ENGN1218 Students ENGN1218 Teaching Staff (Conveners, Lecturers, Tutors, Demonstrators) ENGN1218 Support Staff

WHS Legal and Other Requirements	Work Health and Safety Act 2011 (Cth) Work Health and Safety Regulations 2011 (Cth) *For other legal requirements, choose from University WHS Legal and Other Requirements Matrix for specific Risk Profile and corresponding requirements and list them here. Alternatively, you can refer to a WHSMS Handbook Chapter in this section.*
Type of RA	☐ **Static RA (long term and > 6 months)** - Send a copy (electronic) to WHS Officer/Manager and keep original locally near the activity/location, accessible to all people affected. ☒ **Dynamic RA (short term and < 6 months or once off)** – Keep the original locally (electronically or physically) near the activity/location, accessible to all people affected.

Risk Assessment Instruction

- This form is used when a documented risk assessment is required in accordance with Appendix A of WHSMS Handbook Chapter 3.1.
- Original risk assessments must be in a convenient location in the local area accessible by all people affected by the risk assessment.
- Risk assessments for static hazards/tasks/activities must be forwarded to local the WHS Officer/Manager for inclusion in the School/Service Division Static Risk Assessment Register.

Follow these steps to complete the risk assessment:

1. Select all applicable hazards from Table 1 below and transfer them into the 'Hazards' column of the Risk Assessment (RA) Form.
2. Enter where and when this hazard exists. This may include specifying during which step(s) in the activity, this hazard exists.
3. Estimate the inherent risk of the hazard (without any controls in place) by using Likelihood against Consequences (defined in Table 2) and the ANU WHS Risk Matrix (Table 3). Record this in the 'Inherent Risk' column of the RA Form.
4. Identify appropriate control measures for each hazard in accordance with the Hierarchy of Control Principle (Table 4) and list them in the 'Control' column of the RA Form.
5. Estimate the residual risk of the hazard after implementing all controls. In estimating residual risk, remember that administrative controls can only reduce the 'likelihood' of an event occurring, not the 'consequences'.
6. Identify any controls that are not already in place as corrective actions in Figtree and ensure that they are implemented before undertaking the activity.
7. Obtain approval from relevant people as identified.
8. Identify if this is a static risk assessment (> 6 months) or dynamic risk assessment (< 6 months).
9. Send a copy of the static risk assessments to WHS Officers/Managers/Equivalent – Keep on file for 7 years.
10. Keep originals of risk assessments in close vicinity of the activities. Dynamic risk assessments can be destroyed 1 year after the activity ceases.
11. Review the static risk assessments and associated safe work procedures in accordance with 3.1.2.6 Step 4: Review Control Measures.

Risk Assessment

Hazards Also list where and when can the hazards present?	Inherent Risk			Control Measures When control a hazard, always follow Hierarchy of Control Principle to go to the highest possible control before moving to less effective controls (see Table 4). List the control category and the controls below. Do the same for all other hazards. For any controls that are not in place, fill in the Actions table on the following page.	Residual Risk		
	Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
Hazard 1 **Electrolytic capacitors are used in some of the ENGN1218 hardware lab experiments.** Electrolytic capacitors are polarised components which can leak or explode if incorrectly connected into circuit.	**Possible**	**Moderate**	**High (15)**	**Engineering:** 1) The capacitor values/ratings used along with the low circuit voltages used mean that capacitors will not fail catastrophically. 2) To give further protection, students must use the provided inline fuse leads in their experimental circuits. **Administrative:** 1) Students and lab demonstrators are to be made aware of hazard. This is to be done on the ENGN1218 Wattle website and during lab classes. 2) Students will need to sign off that they have read and understood this Hazard Identification and Risk Assessment document and will comply with it. This sign off is to be done prior to/or at the start of the first lab. 3) Circuits using electrolytic capacitors are to be checked by lab demonstrators before first power up. **Personal Protective Equipment:** 1) Eye Protection Students and lab demonstrators are **required** to wear safety glasses. Safety glasses are to be worn even when prescription glasses are used. The safety glasses are designed to fit over prescription glasses and not only	**Possible**	**Insignificant**	**Low (4)**

				provide better protection of eyes but will also protect the prescription glasses. Free safety glasses will be provided to students and demonstrators			
Hazard 2 **Some lab experiments contain soldering activities. The process of soldering can generate fumes. Solder fumes can cause irritation.**	**Possible**	**Minor**	**Medium (9)**	**Engineering:** 1) Use provided portable fume extractor units at each workstation. **Administrative:** 1) Students and lab demonstrators are to be made aware of hazard. This is to be done on the ENGN1218 Wattle website and during lab classes. 2) Students will need to sign off that they have read and understood this Hazard Identification and Risk Assessment document and will comply with it. This sign off is to be done prior to/or at the start of the first lab. 3) Solder Fumes Avoid inhalation of soldering smoke/fumes. Soldering fumes may cause irritation of mucous membranes, respiratory system and eyes. As soldering fume generally rises vertically, it is easy to enter the breathing zone of the operator. To reduce exposure: - avoid breathing fumes by keeping your head to the side of, not above, your work. - make use of the provided portable fume extractor units located next to the soldering irons at each work station. **Personal Protective Equipment:** 1) Eye Protection Students and lab demonstrators are required to wear safety glasses. Safety glasses are to be worn even when prescription glasses are used. The safety glasses are designed to fit over prescription glasses and not only provide better protection of eyes but will also protect the prescription glasses.	**Unlikely**	**Minor**	**Medium (6)**

				Free safety glasses will be provided to students and demonstrators. 2) Protective Clothing Use of long sleeve shirts and pants (or a lab coat) that are made from natural fibres (eg cotton) is recommended. Closed toe shoes must be worn. ***Note: it is a requirement to wear closed toe shoes at all times in Laboratories.***			

Hazard 3 **Some lab experiments contain a small amount of soldering activities. Flux cored solder is used.** Only flux cored solder is used. No extra flux or board cleaners are used as part of these labs. Although flux cored solder is used it may be possible to get some flux residue on hands and other body parts after soldering and handling of the circuit board. Some solder types can contain lead which can be harmful if ingested.	**Unlikely**	**Minor**	**Medium (6)**	**Elimination/Substitution:** 1) Only flux cored solder is used. No extra flux or board cleaners are used as part of these labs. 2) Only lead free solder is used. **Administrative:** 1) Students and lab demonstrators are to be made aware of hazard. This is to be done on the ENGN1218 Wattle website and during lab classes. 2) Students will need to sign off that they have read and understood this Hazard Identification and Risk Assessment document and will comply with it. This sign off is to be done prior to/or at the start of the first lab. 3) Washing of hands It is recommended that hands be washed with soap and water before breaks, before eating, prior to smoking and at the completion of soldering activities. ***Only use the provided lead free solder. It is not permitted to bring into the lab other solder types, fluxes or board cleaners.*** ***A copy of the Safety Data Sheet for the solder being used is provided at each work station.*** ***Note: Food, drink and their consumption is not permitted in Laboratories.***	**Unlikely**	**Insignificant**	**Low (2)**

				Personal Protective Equipment: 1) Eye Protection Students and lab demonstrators are **required** to wear safety glasses. Safety glasses are to be worn even when prescription glasses are used. The safety glasses are designed to fit over prescription glasses and not only provide better protection of eyes but will also protect the prescription glasses. Free safety glasses will be provided to students and demonstrators. 2) Protective Clothing Use of long sleeve shirts and pants (or a lab coat) that are made from natural fibres (eg cotton) is recommended. Closed toe shoes must be worn. ***Note:** it is a requirement to wear closed toe shoes at all times in Laboratories.*			

Hazard 4 **Some lab experiments contain a small amount of soldering activities. The soldering process involves heating and melting solder which can cause:** - **hot solder splashes** - **burns and fires** Solder Splashes Molten solder can splash, splatter and "spit". In particular wires or components that are being desoldered can act as a spring to toss a solder blob into the air. Burns and Fire Burns and fire can result from the contacting of hot objects associated with soldering, namely the soldering iron or surfaces heated by the iron.	**Possible**	**Moderate**	**High (15)**	**Engineering**: 1) Use the provided soldering iron stand to rest the soldering when not in use. 2) Use provided needle nose pliers and printed circuit board holder while soldering. **Administrative:** 1) Students and lab demonstrators are to be made aware of hazard. This is to be done on the ENGN1218 Wattle website and during lab classes. 2) Students will need to sign off that they have read and understood this Hazard Identification and Risk Assessment document and will comply with it. This sign off is to be done prior to/or at the start of the first lab. 3) While using the soldering equipment the following should be noted: • Never leave turned on soldering irons unattended. • Do not set the hot soldering iron down on anything other than its stand. This is to prevent it from burning things in the work area. • Do not to allow the hot soldering iron to contact surrounding equipment, cables or objects. • Do not to allow the hot soldering iron tip to contact hands, fingers or other parts of the body. Hold the soldering iron by the handle only. • To prevent burning fingers, use needle nose pliers to hold items whilst soldering. Make use of the printed circuit board holder to hold the board while soldering.	**Unlikely**	**Minor**	**Medium (6)**

				Personal Protective Equipment: 1) Eye Protection Students and lab demonstrators are **required** to wear safety glasses. Safety glasses are to be worn even when prescription glasses are used. The safety glasses are designed to fit over prescription glasses and not only provide better protection of eyes but will also protect the prescription glasses. Free safety glasses will be provided to students and demonstrators. 2) Protective Clothing Use of long sleeve shirts and pants (or a lab coat) that are made from natural fibres (eg cotton) is recommended. Closed toe shoes must be worn. ***Note: it is a requirement to wear closed toe shoes at all times in Laboratories.***			

Hazard 5: Use of pliers, cutters, wire strippers and test probes Pliers, cutters and wire strippers are used to cut and strip wire and dress electronic components during the construction of circuits for experiments. Cut and pinch injuries can result from careless/incorrect use of pliers, cutters and wire strippers. Injuries can occur from wire flying about, if not restrained during cutting of wire or component legs. Multimeter and oscilloscope probes may have sharp points which can result in stab injuries.	**Possible**	**Moderate**	**High (15)**	**Administrative:** 1) Students and lab demonstrators are to be made aware of hazard. This is to be done on the ENGN1218 Wattle website and during lab classes. 2) Students will need to sign off that they have read and understood this Hazard Identification and Risk Assessment document and will comply with it. This sign off is to be done prior to/or at the start of the first lab. 3) Component legs or wire being cut should be restrained to stop them flying about. 4) Care should be taken to use the tools correctly and not create situations which can cause cut or pinch hazards to the hands, fingers, face or other parts of the body. 5) Multimeter and oscilloscope probes can have sharp points. Care should be taken when handling probes so as to avoid stab injuries. When making measurements care should be taken to avoid probes slipping and causing stab injuries. The probes have clips and covers that should be replaced on the probes when not in use. Care should be taken not to misplace these probe clips and covers. **Personal Protective Equipment:** 1) Eye Protection Students and lab demonstrators are **required** to wear safety glasses. Safety glasses are to be worn even when prescription glasses are used. The safety glasses are designed to fit over prescription glasses and not only provide better protection of eyes but will also protect the prescription glasses. Free safety glasses will be provided to students and demonstrators. 2) Protective Clothing Closed toe shoes must be worn.	**Unlikely**	**Insignificant**	**Low (2)**

				Note: it is a requirement to wear closed toe shoes at all times in Laboratories.			

Corrective Actions				
The activity must not be commenced until all controls are in place. List below which controls are currently not in place, who will implement them and by when. *Add additional rows as needed.* Identified corrective actions must be recorded in Figtree.				
List of Controls not in place	**Responsible person/s (Resources)**	**Figtree corrective action number**	**Timeframe**	**Date Completed**
Students are to be made aware of risks: **a) Information provided on Wattle website.** **b) Reminded during lab sessions.**	**a) Course Convenor (Course Convener)** **b) Course Convenor (Lab Demonstrators)**		**a) Before start of ENGN1218 labs** **b) Ongoing during labs**	
Wearing of safety glasses. **a) Ensure students wear safety glasses. Remind students during lab sessions.** **b) Free safety glasses provided.**	**a) Course Convenor (Lab Demonstrators)** **b) Lab Manager (Lab Manager)**		**a) Ongoing during labs** **b) To be handed out in first lab class**	
Circuits using electrolytic capacitors are checked by lab demonstrators before first power up.	**Course Convenor (Lab Demonstrators)**		**Ongoing during labs**	
Ensure students use the provided inline fuse leads for the rectifier/power supply experiments.	**Course Convener (Lab Demonstrators)**		**Ongoing during labs**	

Approval for risk assessment

If the level of residual risk is assessed as **high** or **extreme**,

1. **Stop the activity immediately**; AND
2. Tag out the plant/equipment; and/or
3. Secure any chemical; and
4. Implement, or seek advice from WHS Officer or Subject Matter Experts to implement, additional controls to reduce the residual risk further to medium [Supervisor signature required];
5. If the above is not possible, seek approval from relevant authority (High – School/Division Director/College Dean; Extreme – COO).
   NOTE: Approval will only be granted in exceptional circumstances after consultation with Associate Director, WEG and/or a Subject Matter Expert. See Chapter 3.1 for details.

Approval required

Worker conducted RA			Student conducted RA		
Residual Risk Level	**Authority required**	**Signature and date**	**Residual Risk Level**	**Authority required**	**Signature and date**
Low	Author of RA	E. Scipione 16/06/23	Low	Supervisor	
Medium	Supervisor	Dr. Salman Durrani	Medium	Supervisor	
High	School/Service Division Director or College Dean		High	School/Service Division Director or College Dean	
Extreme	COO		Extreme	COO	

Table 1. Hazard Selection Table for Hazard Profiles

Electrical	
☐	Electrical Shock (both minor and major)
☐	Electrical Burns (both minor and major)
☐	Overheating and fire
☐	Electrocution
☒	**Other *(not listed above)*** **Hazard 1** **Use of polarised capacitors which can leak or explode if incorrectly connected into circuit.**

Chemical	
☒	Airborne contaminants that poses a health hazard **Hazard 2** **Some lab experiments contain soldering activities. The process of soldering can generate fumes. Solder fumes can cause irritation.**
☐	Flammable ☐ Liquid ☐ Solid ☐ Gas ☐ Airborne contaminants
☐	Explosive substances
☐	Self-reactive or self-heating chemicals
☐	Organic peroxide or peroxide-forming chemicals
☐	Oxidising substances
☐	Hydrofluoric acid (HF)

Chemical	
☐	Corrosive ☐ Substances ☐ Gas ☐ Airborne contaminants
☐	Asphyxiate gas (e.g. CO_2 including dry ice, liquid N_2)
☒	Toxic and health hazard substances **Hazard 3** **Some lab experiments contain soldering activities. Flux cored solder is used.**
☐	Toxic gas (e.g. Hydrogen cyanide, cyanogen)
☐	Respiratory irritants (e.g. engineered nanomaterials, dust, asbestos)
☐	Chemical spraying (e.g. agricultural, pesticides)
☐	Chemicals requiring health monitoring (e.g. Schedule 14 Chemicals).
☐	Prohibited and restricted carcinogens
☐	Mutagens or reproductive system hazards
☐	Hazards during storage (e.g. mixed hazards storage, dangerous when wet, temperature sensitive, heat & friction sensitive etc)
☐	Mix two chemicals to form a new chemical
☐	Chemical spill – Controlled or uncontrolled
☐	Exposure to Hazardous Materials (e.g. Asbestos, Lead or Mercury).
☐	Other (not listed above, e.g. hazard interactions)

Biological	
☐	Live animal handling (e.g. bites, allergies)
☐	Potential of uncontrolled outbreak of an infectious disease
☐	Pathogen or body fluid contamination
☐	Exposure to viruses including blood borne viruses
☐	Infective microorganism exposure
☐	Exposure to communicable or infectious disease as a research object
☐	GMO exposure and security
☐	Sharps and contaminated sharps
☐	Biological material spillage
☐	Other (not listed above)

Plant and Equipment	
☐	Entanglement and trapping parts
☐	Crushing, rotating and cutting parts
☒	Serious burn/cold **Hazard 4** **Some lab experiments contain soldering activities. The soldering process involves heating and melting solder which can cause:** - **hot solder splashes** - **burns and fires**
☐	Ejection of piece/s; shattering or fragmentation; Explosion; Implosion

Plant and Equipment	
☐	Stabbing, puncturing, shearing, friction, abrasion
☐	Lifts or suspends a load (e.g. falling objects)
☐	Rollover or striking against the plant
☐	Pressurised vessels (e.g. autoclave, boilers, steam generator)
☐	Mobile lifting equipment and Elevated Work Platform (e.g. heavy load fall from height)
☐	Hazardous levels of heat or vibration (generated by plant to whole or part body)
☐	Potential exposure to fluids under high pressure
☒	**Other *(not listed above)*** **Hazard 5** **Tools, cutting implements, pinch and stab injuries.**

Noise	
☐	Exposure to 85dB(A) LAeq, 8h
☐	Exposure to peak noise level of 130 dB(C) any time during the work activity
☐	Exposure to ototoxic chemicals: ☐ At any noise level ☐ > 50% of the OEL of the chemical at any noise level ☐ At over 100 dB noise level but any level of exposure to ototoxic chemicals
☐	Exposure to vibration & ototoxic chemicals

Noise	
☐	Nuisance level of noise causing discomfort
☐	Other ((not listed above)

Radiation	
☐	Sealed or Unsealed sources (alpha, beta or gamma)
☐	Exposure to EM Radiations (e.g. X-ray, UV, infrared)
☐	Exposure to artificial radiation (e.g. laser)
☐	Security of sealed and unsealed sources
☐	Other (not listed above)

Ergonomics and Manual Tasks	
☐	Repetitive or sustained forces
☐	Sustained awkward static postures
☐	Repetitive movements
☐	Long duration
☐	High Forces
☐	Long duration of the same posture (e.g. standing, sitting)
☐	Animal handling or handling unbalanced/unpredictable load
☐	Transfer of item(s) up or down stairs, using both hands or requiring the use of lifting equipment from one level to another
☐	Repetitive, monotonous work, at a high pace

Duress and Security Stress	
☐	Personal life threat e.g. violence behaviour, attacking with knives, guns, clubs, or any type of weapon
☐	Personal threat e.g. aggressive behaviour, physical abuse, assault (includes home visits, public interview)
☐	Verbal abuse, threat
☐	Sexual assault/Raping
☐	Bomb threat or unidentified package
☐	Throwing objects, pushing, shoving, tripping, grabbing, kicking, hitting
☐	Contact with body fluid (e.g. biting, spitting, scratching)
☐	Kidnaping in a public location while conducting interviews
☐	Unauthorised persons gained access to a building
☐	Other (not listed above)

Public Safety	
☐	Uncontrolled spread of hazardous materials to public
☐	Uncontrolled spread of GMO, communicable or infectious disease to public
☐	Natural disaster e.g. earthquake, flood, bushfire
☐	Explosion of liquid nitrogen tanks or other tanks that would injure public
☐	Loss of radioactive sources that are potentially hazards to students and public
☐	Hazardous wastes going into drinking water/public river/public sewage

Public Safety	
☐	Use of industrial robots or University designed robots
☐	Use of VR, AI or emerging technology on experiment participants
☐	Provide experiment participants with confronting materials that would cause traumatic events
☐	Supply/inject/apply substances (e.g. alcohol, chemical, S4-S9 drugs) to experiment participants
☐	Other (not listed above)

Physical/Environmental	
☐	Animals (e.g. hazardous wild animals, bees, snakes)
☐	Confined space entry (e.g. pit, tank, silo, entry through a hatch)
☐	Fall from a height (e.g. ladder, elevated platform, cliff, scaffolding)
☐	Fire (potential for uncontrolled fire due to ignition sources)
☐	Flying or moving items/plant/vehicles, falling object(s)
☐	Hazardous terrain or environment including wet/slippery surfaces
☐	Lighting/visibility is compromised and hazardous
☐	Exceedingly strong lighting both natural and artificial
☐	Glare and reflections
☐	Temperature or weather extremes (e.g. hypothermia, major burns)
☐	Difficult to access work site, or a rescue effort would be difficult in the event of an emergency

Physical/Environmental	
☐	Poor air quality or ventilation at work
☐	Insufficient/poor amenities (e.g. toilets, lunch area, breakout area, air-conditioner)
☐	Fall on same level (e.g. slip, trip, wet or unstable surface)
☐	Other (not listed above)

Traffic Safety	
☐	Lack of separation of vehicles, delivery drivers and pedestrians
☐	Lack of physical barriers to prevent interaction between vehicles, delivery drivers and pedestrians
☐	Vehicles queue in a way that could create risks to pedestrians, for example crossing walkways or obstructing people's view of vehicles
☐	Routes are not wide enough to separate vehicles and pedestrians
☐	Vehicles and pedestrians frequently interact
☐	Activities done close to public areas (e.g. students coming out from a School building)
☐	Unsuitable road conditions, uneven terrains, unregulated road routes
☐	Certain times of higher traffic volumes or interactions between vehicles, delivery drivers and pedestrians
☐	Poor lighting, visibility, shade or glare
☐	Potential contact with stationary objects e.g. overhead structures, stationary plant or stored or discarded items.

Traffic Safety	
☐	Blind spots at the workplace caused by stationary equipment and vehicles and other areas of poor visibility or low lighting levels
☐	Other hazards e.g. noise, emissions or falling objects surrounding the building
☐	Pedestrian routes are not designed so pedestrians will not take short cuts
☐	Intersections and bottleneck areas around driveways and entrances
☐	'Blind' or convex corners
☐	Lack of disability access to and within a workplace
☐	Workers are not aware of insurance policy or emergency procedure on road
☐	Lack of maintenance of bikes and cars provided to workers
☐	Use of personal vehicle or bikes for work activities
☐	Other (not listed above)

Event Specific	
☐	Access to the event is restricted/controlled
☐	Amenities, including disability amenities inadequate/insufficient
☐	Amusement structures/rides/inflatable structures
☐	Animals and wildlife
☐	BBQ using gas bottles
☐	Children under the age of 18 are part of the event or attending
☐	Hit by a vehicle (e.g. moving cars in proximity to pedestrians)

Event Specific	
☐	Held in a remote area, difficult to access site)
☐	Crowding
☐	Communication problems/co-ordination of information/alerts
☐	Fatigue e.g. duration of the event, extreme heat
☐	Liquor license
☐	Medical emergency, difficult to administer or obtain first aid gain assistance e.g. access to medical facilities
☐	Scaffolding more than 4m in height
☐	Food services and preparation
☐	High risk work licence required in accordance with WHS Regs

High Risk Travel	
☐	Risk of kidnapping in this city/region
☐	Current civil unrest/political tension
☐	Violent crime
☐	Threat of attack from bordering nations
☐	Region affected by natural disaster
☐	Threat of regional disputes spreading
☐	Heightened risk terrorist attacks can occur
☐	Health risks from insect borne disease
☐	Health risks from water borne disease
☐	Health risks from other infectious disease in the destination countries

High Risk Travel	
☐	Threat of assault and sexual assault in foreign countries
☐	Travel by some roads restricted due to risks
☐	Risk of violence or discrimination based on gender or LGBTI identity
☐	Unpredictable and potentially volatile security situation
☐	Other (not listed above)

Working Away from Campus	
☐	Lack of appropriate communication tools/aid
☐	Lack of tracking to know where the person is
☐	Remote or isolated work locations
☐	Use of poorly maintained vehicles or use of personal vehicles
☐	Wildlife or animals
☐	Traffic accidents while going to or from Campus
☐	Duress situations including being threatened by the public
☐	Poorly set-up/resourced offsite workspace
☐	Social isolation and lack of day to day support
☐	Loss of usual health/self-care routines such as exercise and sleep
☐	Other (not listed above)

Psychosocial	
☐	Job Demands – High job demand, long working hours

Psychosocial	
☐	Job Demands – High emotional effort responding to distressing situations and to aggressive colleagues or students
☐	Job Demands –Shift work, casual employment, afterhours work, fatigue management
☐	Job Demands – Low job demands, too little to do, monotonous tasks
☐	Poor support - including emotional support, from employer, colleagues and managers
☐	Poor support - Not having the things to do their job properly or on time (e.g. not having the necessary and well maintained tools, systems, equipment or resources)
☐	Poor support – inadequate training, leadership, feedback and instruction from supervisor/manager
☐	Poor Support – Unable to ask for help or collaborate with colleagues due to excessively competitive or unhealthy workplace culture
☐	Low Job Control – High workloads, time pressure, fast work pace
☐	Low Job Control – workers not able to determine methods of work, changes to work practices or otherwise have low autonomy in their role
☐	Poor organisational change management – poor planning for change without considering WHS needs
☐	Poor organisational change management- poor consultation in change management
☐	Poor organisational change management; poor communication of needs and processes for change.

Psychosocial	
☐	Low role clarity - uncertainty about changes or frequent changes to tasks and work standards; conflicting job roles or reporting lines
☐	Low role clarity – No standardised WHS management practices across the University
☐	Remote and/or isolated work – working alone (eg nightshift) or away from usual workplace, reduced access to communications and usual support networks (friends/family)
☐	Remote and/or isolated work – working in locations requiring long travel, or difficult access, poor access to support and emergency services
☐	Poor Physical Environment – Workplace not compliant with WHS requirements
☐	Poor Physical Environment – Poor air quality, high levels of noise, extreme temperatures
☐	Poor Physical Environment – Frequently working in unpleasant conditions
☐	Poor Physical Environment – Frequently performing hazardous tasks
☐	Exposure to Traumatic Events – Direct exposure to traumatic events at work
☐	Exposure to Traumatic Events – Indirect exposure to traumatic events at work
☐	Harmful Behaviours - aggression, harassment and sexual harassment, discrimination based on race, gender, sexuality, disability or other.

Psychosocial	
☐	Harmful Behaviours - Violent events such as robbery, assault including sexual assault, being threatened by managers, colleagues, students, customers, managers or visitors to campus.
☐	Harmful Behaviours – workplace conflicts
☐	Harmful behaviours – Poor relationship between supervisors/line managers and staff or HDR students or other workers
☐	Bullying – Workplace bullying
☐	Poor Organisational Justice – Perceived or actual lack of fairness, equity and diversity; discrimination against community groups or members (e.g. LGBTQI)
☐	Poor organisational justice - ; inconsistent application of policy and procedures; bias on resource allocation
☐	Inappropriate rewards and recognition – receiving or witnessing unfair, insufficient or biased feedback or reward in the workplace
☐	Inappropriate rewards and recognition – limited or inequitable provision of development opportunities/ skill recognition
☐	Individual vulnerability–person without a disability; pre-existing mental and/or physical conditions; age and experience of worker, disclosed external stressors eg carer responsibilities, financial situation, relationship status.
☐	Other (not listed above)

COVID-19	
☐	Common Controls associated with COVID-19 (Appendix B.1)
☐	Other (not listed above)

Other Hazard Profiles not listed above	
☐	Please identify in the Hazard Profile here and hazards in the form below

☐	**No hazards are identified. No Risk Assessment is required.**

Table 2.1. Likelihood Table

Ranking	Description	Probability or frequency of event happening
Almost certain	The hazard is expected to lead to an event in most circumstances at the University	A daily to monthly occurrence
Likely	The hazard could lead to an event in most circumstances at the University	Occurs once monthly to once yearly
Possible	The hazard has led to an event at some time at the University	Occurs once between 1 to 5 years
Unlikely	The hazard could lead to an event at some time	Occurs once between 5 to 20 years
Rare	The hazard may lead to an event in exceptional circumstances	Occurs once between 20+ years

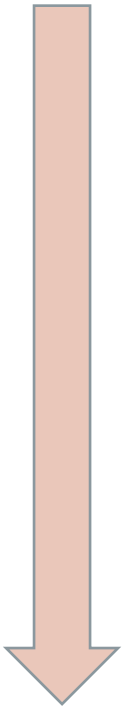
Table 2.2. Consequences Table

Ranking	Injury, Illness or Disease	Plant, Equipment and materials	Environment
Catastrophic	Fatality / fatalities or permanent disability. Permanently unable to work	Destroyed or cannot be reused	Long term permanent effect to ecosystems. Significant intervention required to remediate
Major	Requiring extensive medical treatment such as hospitalisation as in patient and possibly a Notifiable Incident. LTI >1 week	Damage requiring repairs/rebuild and possible recertification prior to reuse, lost use for one or more days	Notification to environmental agency, ecosystem will need time to recover, intervention required to remediate
Moderate	Minor medical treatment injury, such as treated by a health professional (eg physiotherapist/ psychologist), hospital outpatient, no potential to be a Notifiable Incident. LTI < 1 week and can return to normal duties	Damage requiring a repair/service by a trade/technician within the day	Contamination event that does not impact on ecosystem. Short impact does not need intervention
Minor	Injury needing significant first aid/mental health first aid treatment and can return to work within shift	Equipment able to be reset or gotten back into operation by the operator	Minor contained contamination ceasing when the short event is over, can remediate (e.g. spill kit)
Insignificant	Report only, no injury OR minor first aid (e.g. bandaid); short-term discomfort	Report only, no damage	Report only, no contamination

Table 3. ANU WHS Risk Matrix

	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium (10)	High (14)	Extreme (21)	Extreme (22)	Extreme (25)
Likely	Medium (7)	High (13)	High (16)	Extreme (20)	Extreme (24)
Possible	Low (4)	Medium (9)	High (15)	High (18)	Extreme (23)
Unlikely	Low (2)	Medium (6)	Medium (8)	High (17)	High (19)
Rare	Low (1)	Low (3)	Low (5)	Medium (11)	Medium (12)

Table 4. Hierarchy of Control

Level	Examples	Effectiveness
Elimination	• Remove the hazards completely. • Cease the activity. • Dispose of unwanted hazardous chemicals or plant etc. • Individuals with COVID symptoms are not allowed on campus or attend class.	**Most Effective**  **Less Effective**
Substitution	• Use less hazardous chemicals. • Use safer plant equipment. • Use handset instead of telephone. • Move smaller weight loads instead of large weight. • Remote teaching, learning and meetings (COVID). • Outdoor gathering and functions (COVID).	
Isolation	• Physical separation from the hazard by distance or complete shielding. • Install guard rails around edges and holes to floors. • Move workers to a new room away from hazardous noise. • Install safety screens in customer service areas to reduce risk of aggressive behaviours. • Use phone or online communications rather than face to face for high risk individuals. • Provide quiet rooms for staff to have respite from noisy or busy work spaces. • Maintain physical distancing in line with current state/territory requirements (COVID). • Hire sufficient vehicles to ensure physical distancing during field trip (COVID).	

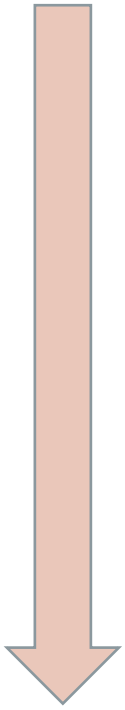
Engineering Control	• Use ventilation system. • Use fume cupboard when working with hazardous chemicals. • Install guarding around rotating and crushing parts. • Use trolley or hoist to lift heavy loads. • Use duress alarm system while doing home interview or offsite field work. • Access to hand sanitizer/wash (COVID).	**Effective**  **Least Effective**
Administrative Control	• Use Safe Work Procedures [See section 3.1.3.1] or instructions. • Induction and WHS information. • Training [See Handbook Chapter 3.2]. • Contingency Planning and Testing [See section 3.1.3.2]. • Permit to Work system [See section 3.1.3.3]. • Implement regular debriefing for staff working in high risk areas for customer aggression or exposure (direct or indirect) to traumatic events. • Promote available support resources such as EAP and Advisers to Staff regularly in team meetings and events. • Signage. • QR Check-in system (COVID).	
Personal Protective Equipment (PPE)	• Lab coat. • Safety glasses/face shield. • Gloves/cryogenic gloves. • Respirators/Masks (e.g. P2/N95 for COVID protection). • Personal hearing protectors.	

Table 5. Risk Assessment and SWP review timeframe

Use this Table to determine risk assessment and safe work procedure review timeframe and frequency and put in the front of the risk assessment.

Residual Risk	Review Frequency		What to do during the review.
Extreme	6 monthly	And/or After an incident where deficiencies in identifying or controlling hazards have been observed When changes to the activity need to occur When significant changes (e.g. renovation) to the workplace need to occur When HSRs request a review	Stop work. Review the control measures and introduce additional control measures to reduce the residual risk to Medium as a maximum.
High	Annually		Stop work. Review the control measures and introduce additional control measures to reduce the residual risk to Medium as a maximum.
Medium	Two yearly		Review the control measures.
Low	Three yearly		Review the control measures.