



TAB BETWEEN FIELDS MAKING ENTRIES BY TYPING INTO THE GREY HIGHLIGHTED BOXES. WHEN CLICKED NUMERIC FIELDS OFFER DROP-DOWN SELECTIONS

**PART 1 – ACTIVITY / TASK DESCRIPTION** - Use additional sheets if necessary - Peer check must be by person familiar with the planned activity

<b>Location</b> UWA Makers Lab	<b>Assessment Date</b> 07/05/2024	<b>Expiry Date</b> (max. 5 years) 2 years	<b>Assessor</b>	<b>Peer checked by</b>
<b>Task / Activity / Project Title</b> Rocket Tracking Telemetry System				<b>How many persons will be involved?</b> 3
<b>Description</b> (alternatively, a separate METHOD STATEMENT or equivalent detailed description may be referenced from here if a copy is attached) Refer to attached Method Statement				
<b>Workplace conditions</b> (describe layout, access/egress, physical conditions [e.g. on a public thoroughfare, crowded room, outside enclosed by barrier], containment [e.g. ventilation, fume cupboards, safety cabinets, open bench-work] and other key factors impacting on the activity/ task). <p>The UWA Makers Lab is a multifunctional space located in the Clough Engineering Student Centre that can be used for various fabrication tasks. Within the facility, students have access to soldering stations (can house 6 people simultaneously) dedicated to assembling and securing electronic components for both the payload module and the base station module for the rocket telemetry system. Next to the soldering stations is the 3D printing area equipped with advanced printers (includes Ultimakers (FDM), Seven Deadly Sins (FDM) and Large Format Printer (FDM)) capable of creating a case for the base station.</p> <p>The lab also features laser cutting workspace where materials can be precisely cut for structural components. Furthermore, the lab includes assembly benches for the installation of the payload module into the CubeSat, electronic benches, and computer workstations for design and simulation tasks. Administrative functions are located in the Makers Office, which allows coordination and support throughout the build phase if needed.</p> <p>Note that at least one person involved in the activity requires both an online and face to face induction.</p>				
<b>Related Documentation / Guidance</b> (this may include referenced articles, legislation, standards or codes which must be specifically highlighted) Method Statement: ELEC5551 Team 6 Method Statement SOPs (for equipment): Other: ICNIRP RF EMF Guidelines 2020 UWA Makers Website				

**RISK CALCULATOR** - when completing Part 2, refer to the variable definitions to determine Risk Rating and Control Strategies

CONSEQUENCES (the most probable outcome of exposure to the hazard)			C	LIKELIHOOD (that an individual, being exposed to the hazard, will result in the identified consequence)		L
<b>Catastrophe</b>	Multiple fatalities		100	<b>Almost certain</b>	The most likely outcome if the event occurs	10
<b>Disaster</b>	A fatality		50	<b>Likely</b>	Not unusual and quite possible to occur	6
<b>Very serious</b>	Permanent disability or ill health		25	<b>Unusual</b>	Possible but doubtful	3
<b>Serious</b>	Non-permanent injury or ill health		15	<b>Remotely possible</b>	A possible coincidence	1
<b>Important</b>	Medical attention needed		5	<b>Conceivable</b>	Has never happened in years of exposure, but possible	0.5
<b>Noticeable</b>	Minor cuts, bruises, sickness		1	<b>Practically impossible</b>	Not known to ever have happened anywhere	0.1

EXPOSURE (can be regularity of activity or a simultaneous, collective attendance)				E
REGULARITY		ATTENDANCE		
<b>Continuous</b>	Many times daily	OR	<b>A crowd of people all of whom</b> will be exposed to the hazard (e.g. public event, theatre, cinema)	10
<b>Frequent</b>	Approximately once daily	OR	<b>A crowd of people some of whom</b> will be exposed to the hazard (e.g. public event, theatre, cinema)	5
<b>Occasional</b>	Once a week to once a month	OR	<b>A small group of people</b> involved (e.g. classroom, lecture, laboratory, meeting)	3
<b>Infrequent</b>	Once a month to once a year	OR	<b>Several people</b> involved	2
<b>Rare</b>	Has been known to occur	AND	<b>A person</b> carrying out a single task	1
<b>Unheard of</b>	Not known to have occurred	AND	<b>A one-off task by one person</b>	0.5

RISK SCORE C x L x E =	RISK RATING	CONTROL STRATEGIES (to mitigate risk from the identified hazard)
>600	VERY HIGH	<ul style="list-style-type: none"> <li>Immediate action required.</li> <li>Do not proceed with task/activity until control measures have been implemented.</li> <li>Notify Supervisor, Safety &amp; Health Representative and Head of School.</li> <li>Arrange continuous review and monitoring.</li> </ul>
>300 to 600	HIGH	<ul style="list-style-type: none"> <li>Consider not carrying out task/activity until control measures have been implemented as soon as practicable.</li> <li>Notify Supervisor and Safety &amp; Health Representative.</li> <li>Action plan to reduce risk.</li> <li>Monitor every subsequent exposure in addition to any other regular monitoring regime.</li> </ul>

>90 to 300	MEDIUM	<ul style="list-style-type: none"> <li>Implement immediate action to minimise potential for injuries.</li> <li>Notify Supervisor to organise remedial action before commencing activity.</li> </ul>
90 or Less	LOW	<ul style="list-style-type: none"> <li>Required action to be agreed with Supervisor.</li> <li>Remedial action to be taken as soon as practicable and within a month.</li> </ul>

## PART 2 – IDENTIFY HAZARDS, ASSOCIATED RISK RATINGS AND CONTROL STRATEGIES

- Pick out the hazards which are relevant for this task or activity.
- Click entry fields for drop-down selection of inherent risk values for C, L and E.
- In the comments box, describe when and where the hazard is present and other notes.
- Specify the control measure type from the Hierarchy of Control (top right)
- Under Control Measures give a description of the control to be implemented.
- Click entry fields for drop-down selection of residual risk values for C, L and E.

Elimination..... EL      **HIERARCHY OF CONTROL**  
Substitution..... SU  
Engineering..... EN      Isolation..... IS      Guarding..... GD  
Administrative.... AD      Training.... TR      Inspection..... IN  
Personal Protective Equipment = PPE

IDENTIFIABLE HAZARDS (editable)	INHERENT RISK				COMMENTS	CTRL	CONTROL MEASURES	RESIDUAL RISK			
	C	L	E	=	(when and where hazard is present)			C	L	E	=

### GENERIC - associated with the activity

Slip and trips	25	6	2	300 M	Proturing cables and obstructions (chairs, tables, wet floor, other people and their projects etc)	IN,PPE	Inspect work area prior to commencing work and remove any trip/slip hazards. Store personal items in the storage provided. Work area to be tidy and dry. Closed shoes	25	1	2	50 L
Manual handling	0	0	0	0 -				0	0	0	0 -
Becoming stuck, crushed, entangled	0	0	0	0 -				0	0	0	0 -
Sustaining cuts or abrasions	5	6	2	60 L	The creation of the loop antenna and container requires some cutting with precision knives, during which fingers will be in close proximity to a sharp tool.	PPE,TR	Gloves provide protection against accidental cuttings. To reduce chances of cuts, keep hands outside the line of contact/fire and exercise general awareness and caution.	1	1	2	2 L
Vibration	0	0	0	0 -				0	0	0	0 -
Burns	5	6	3	90 L	During the soldering process, the individual is using a tool that produces significant heat, with fingers in close proximity to the soldering tip. RF burns can also occur when being in direct contact with the antenna	IN,TR	General awareness and turn off when not in use. Don't leave it unattended and put it back in the holder when not in use. Let people know if in use. Keep area clean for free movement. Be calm and collected. Include training.	5	3	2	30 L
Projectiles	0	0	0	0 -				0	0	0	0 -
Asphyxiation	0	0	0	0 -				0	0	0	0 -

### ELECTRICAL

High voltage equipment	0	0	0	0 -				0	0	0	0 -
240V equipment	25	3	2	150 M	During construction, the soldering iron will be used. This will be plugged into a wall outlet which is a potential point of exposure. Additionally, the soldering iron wire is another contact risk as its insulation could be damaged.	AD	Check tags to identify faulty equipment. Further equipment inspection can also help identify faults. Keep water and metal away from the power outlets	15	1	1	15 L

### CHEMICALS OR SUBSTANCES

Carcinogens	0	0	0	0 -				0	0	0	0 -
Toxic (poisons)	0	0	0	0 -				0	0	0	0 -
Radioactivity	0	0	0	0 -				0	0	0	0 -
Flammable	15	1	2	30 L	The battery has the potential to catch fire if the battery is damaged or is faulty.	AD,IS	Identify where the fire extinguishers (look at colour to identify the appropriate extinguisher) and emergency exits are located prior to initiating construction. The battery should also be kept away from ignition sources and flammable objects. In general, the battery should be handled with care and there should be no smoking in the area.	5	0.5	2	5 L
Explosive	25	0.5	2	25 L	The battery has the potential to explode if the battery is damaged or is faulty.	AD,IS	Identify where the fire extinguishers (look at colour to identify the appropriate extinguisher) and emergency exits are located prior to initiating construction. The battery should also be kept away from ignition sources and flammable objects. In general, the battery should be handled with care and there should be no smoking in the area.	15	0.5	2	15 L
Infectious material	0	0	0	0 -				0	0	0	0 -
Biological	0	0	0	0 -				0	0	0	0 -
Corrosive	5	1	1	5 L	Batteries contain corrosive liquids that individuals may be exposed to if the battery exterior gets damaged.	IS	The battery must be handled with care to ensure no tools are irresponsibly used and damages the battery exterior. In particular, the battery must be kept away from the soldering iron.	5	0.5	1	3 L
Solvents	0	0	0	0 -				0	0	0	0 -
Emissions	5	6	3	90 L	Member/s are exposed to gases produced during the soldering (heavy metal vapours) and resin-coating process	EN,TR	Soldering fan must be positioned over the PCB and in front of the individual's face to minimise inhalation. For prolonged soldering, taking breaks is necessary.	1	0.5	3	2 L

### WORKING ENVIRONMENT

Dust	0	0	0	0 -				0	0	0	0 -
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Noise	0	0	0	0 -				0	0	0	0 -
Extremes of temperature	0	0	0	0 -				0	0	0	0 -
Inadequate light	5	1	2	10 L	UWA Makers Lab may experience a power outage, with lights potentially going out, making tool usage dangerous.	EL	If there is no backup power to provide lighting, the team must turn off all powered tools used, pack away all tools and leave the room.	1	1	2	2 L
UV or other radiation exposure	25	3	1	75 L	RF radiation could occur as a result of direct contact when testing the antenna, which according to ICNIRP can have carcinogenic effects on an individual.	IN, EL	Have general awareness by ensuring little or no contact with the antenna	1	3	1	3 L
<b>OTHER HAZARDS</b>											
Shared workspace	15	6	2	180 M	The work area is a shared workspace with other lab users who will be using other tools and machinery, potentially in close proximity. This introduces additional hazards.	TR,IN	Have a general awareness and inform other people when working with tools that may introduce hazards. Members should also try to work in a clean and separate environment than other groups.	5	3	2	30 L
	0	0	0	0 -				0	0	0	0 -
	0	0	0	0 -				0	0	0	0 -
	0	0	0	0 -				0	0	0	0 -
	0	0	0	0 -				0	0	0	0 -
	0	0	0	0 -				0	0	0	0 -

### PART 3 – IMPLEMENTATION / ESCALATION PLAN

I have reviewed this risk assessment and agree that the control measures will be implemented as described above.

If other than a one-off activity, monitoring and review of their effectiveness will be carried out and recorded every N/A (one-off activity) . (enter period)

**NAME**

**SIGNATURE**

**DATE**

**SUPERVISOR:**

**HEAD OF SCHOOL, DIRECTOR, EQUIVALENT  
or FORMALLY DELEGATED SIGNATORY:**

ANY SIGNATORY AUTHORITY MUST BE RECORDED AND ONLY DELEGATED TO COMPETENT PERSONS OR AN AUTHORISING COMMITTEE      RETAIN RISK ASSESSMENTS FOR REFERENCE