

STUDENT RESEARCH PROJECT SAFETY PLAN

FEIT CAPSTONE/GRADUATE PROJECT SUBJECTS

**Instructions:**

- To be completed by Capstone and graduate project students prior to commencement of research project (Refer to subject outline for the submission date)
- This plan should be regularly reviewed, and updated when changes to project affect health, safety or environmental risk.
- Plan to be signed off by UTS Academic advisor (and Industry Advisor, if relevant).
- Refer to [UTS Research Safety](#) information pages for more details.

(1) STUDENT & PROJECT DETAILS

Student name	Jeong Bin Lee		Student number	12935084
Major	Electrical		Subject number	41029
Academic advisor name	Dylan Lu		Academic advisor email	Dylan.Lu@uts.edu.au
Project title	MPPT Charger Controller			
Project Start Date	10 May 2021			
Estimated Project End Date	October			
Brief Description of Project	Maximum Power Point Tracking for changing environment and partial shading to reduce the time it takes to calculate the maximum power using additional sensor.			
Location(s) of research work if applicable:	UTS Building:	Building 11		
	UTS Lab name:	CB11.10.403 Power Lab		
	External location address			
Induction required into specialist laboratory?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not applicable <input type="checkbox"/>	

(2) WILL THE PROJECT BE CARRIED OUT AT A WORKPLACE OTHER THAN UTS? YES NO

If you answer YES, Appendix A (Host Organisation Health & Safety Checklist) **MUST** be completed as well as this form.

(3) IS THE PROJECT ENTIRELY DESK/COMPUTER-BASED? YES NO

If you answer YES please go directly to section 6. If you answer NO please proceed to fill in the rest of the form.

(2) HAZARD IDENTIFICATION

Use the table to identify hazards involved in the project and follow the measures to help manage them.

FIELDWORK

Does this project involve ...	Yes	No	If the answer is 'Yes' – then:
Any research conducted at fieldwork locations other than the regular campuses of the University (including outside Australia)?		✓	<ul style="list-style-type: none"> Document UTS Fieldwork Risk Assessment prior to fieldwork. Refer to UTS Fieldwork Guidelines

WORK IN HEALTHCARE SETTINGS

Does this project involve ...	Yes	No	If the answer is 'Yes' – then:
Any work in a healthcare setting not controlled by UTS (includes hospital, clinic, allied health service or household)?		✓	<ul style="list-style-type: none"> Complete the Work in Healthcare Settings checklist prior to conducting the research. Refer to UTS Work in Healthcare Settings

OVERSEAS ACTIVITIES

Does this project involve ...	Yes	No	If the answer is 'Yes' – then:
Any work in overseas hazardous facility, such as laboratory, workshop or factory?		✓	<ul style="list-style-type: none"> Refer to UTS Work in Overseas Research Facilities

PATHOGENS

Does this project involve ...	Yes	No	If the answer is 'Yes' – then:
PC2, PC3 or PC4 pathogens?		✓	<ul style="list-style-type: none"> Obtain approval from Biosafety Committee prior to any biosafety dealings. Refer to UTS Microbiological
Imported biological material?		✓	<ul style="list-style-type: none"> Obtain approval from Biosafety Committee prior to any genetic modification dealings. Refer to UTS Genetically Modified Organisms

GENETICALLY MODIFIED ORGANISMS

Does this project involve ...	Yes	No	If the answer is 'Yes' – then:
Genetically modified organisms?		✓	<ul style="list-style-type: none"> Obtain approval from Biosafety Committee prior to any genetic modification dealings. Refer to UTS Genetically Modified Organisms

IONISING RADIATION SOURCES

Does this project involve ...	Yes	No	If the answer is 'Yes' – then:
Radioactive isotopes?		✓	<ul style="list-style-type: none"> Obtain approval from Biosafety Committee prior to any work with radioactive isotopes. Refer to UTS Radiation
Radiation apparatus?		✓	<ul style="list-style-type: none"> Obtain approval from Biosafety Committee prior to any work with radioactive isotopes. Refer to UTS Radiation
Ionising radiation sources?		✓	<ul style="list-style-type: none"> Obtain approval from Biosafety Committee prior to any work with radioactive isotopes. Refer to UTS Radiation

LASER SOURCES

Does this project involve ...	Yes	No	If the answer is 'Yes' – then:
A LASER of class 2M or above?		✓	<ul style="list-style-type: none"> Contact your local Laser Safety Officer. Reference Risk Assessment in the Register below.

PLANT AND EQUIPMENT

Does this project involve ...	Yes	No	If the answer is 'Yes' – then:
Machinery, tools, appliances and equipment?		✓	<ul style="list-style-type: none"> Perform a UTS Health & Safety Pre-purchase Checklist for new items. Refer to UTS Plant and Equipment

DRONES (Remote Piloted Aircraft)

Does this project involve ...	Yes	No	If the answer is 'Yes' – then:
Flying Drones?		✓	<ul style="list-style-type: none"> Refer to UTS Drones (Remote Piloted Aircraft)

DIVING

Does this project involve ...	Yes	No	If the answer is 'Yes' – then:
Diving?		✓	<ul style="list-style-type: none"> Engage a Dive Officer Register dive sites and dive proposals with the Dive Officer prior to diving. Provide Scientific diver / Rescue diver / Dive Master

PLUG-IN ELECTRICAL EQUIPMENT

Does this project involve ...	Yes	No	If the answer is 'Yes' – then:
Use of any plug-in electrical equipment in a "hostile operating environment"?	✓		<ul style="list-style-type: none"> Ensure plug-in electrical equipment is tested and tagged Refer to UTS Electrical Safety Guidelines

HAZARDOUS CHEMICALS

Does this project involve ...	Yes	No	If the answer is 'Yes' – then:
Hazardous chemicals / dangerous goods / schedule drugs?		✓	<ul style="list-style-type: none"> Obtain UTS Biosafety Committee Approval prior to any dealings with category 1 carcinogens, mutagens or reproductive toxicants. All other chemicals included in risk assessment. Refer to UTS Chemical Safety Guidelines
Cryogens e.g. liquid nitrogen / argon?		✓	

OTHER SOURCES OF HEATH, SAFETY AND ENVIRONMENT RISK

Are there any hazards NOT covered in risk management strategies noted above?

Does this project involve ...	Yes	No	If the answer is 'Yes' – then:
Noisy equipment (sound level monitoring may be required)		X	
Vibrating equipment		X	
Dust		X	
Hazardous gases		X	
Nanomaterials		X	
Pressure vessels/boilers (license may be required)		X	
Electrical wiring (license may be required)	X		
Working at a height		X	
Working in a confined space		X	
Hot Works		X	
Driving vehicles/4WD/boats		X	
Work with bodily fluids/parts		X	
Working with animals/insects		X	
Sharps/needles		X	
X-ray equipment		X	
Microwave radiation		X	
Working with ionising ultraviolet light		X	
Hazardous waste (e.g. biological, chemical)		X	
Emissions to atmosphere		X	
Discharge to soil and water bodies (including stormwater run-off)		X	
Nuisance noise or odour		X	
Extreme temperatures		X	<ul style="list-style-type: none"> Ensure the hazard is addressed in an appropriate risk assessment

Ergonomics: repetitive or awkward movements	X
<u>Manual handling</u> : lifting or moving awkward or heavy objects	X
<u>Slippery surfaces/trip hazards</u>	X
<u>Poor lighting/ventilation/air quality</u>	X
Violent or volatile clients/interviewees	X
<u>Working in isolation for extended periods</u>	X
<u>Cash handling</u>	X
<u>Engaging construction contractors</u>	X
<i>Any others not already listed:</i>	X

(3) RISK ASSESSMENT

Complete this for hazards in your project identified in Section (4). Refer to [Health & Safety Risk Management video](#) and [UTS Risk Assessment](#) for help on how to carry out risk assessment.

TASK	ASSOCIATED HAZARD(S)	INHERENT HARM	EXISTING CONTROL MEASURES	RISK LEVEL (High/ Medium/ Low)	PROPOSED CONTROL MEASURES	TARGET DATE To implement proposed controls	RESIDUAL RISK LEVEL (High/ Medium/ Low)
List and describe hazardous task/activity/processes/step/equipment	Harm that could occur from these hazards if controls fail or are not in place.	Control measures currently in place to minimise risk			• Fire extinguishers • Fire blankets • Insulation tape	• using existing control measures	Low
Electrical wiring	sparks, damaged circuit board	Electric shock Fire			• • • •	•	Low

TASK	ASSOCIATED HAZARD(S)	INHERENT HARM	EXISTING CONTROL MEASURES	RISK LEVEL (High/ Medium/ Low)	PROPOSED CONTROL MEASURES	TARGET DATE To implement proposed controls	RESIDUAL RISK LEVEL (High/ Medium/ Low)
List and describe hazardous task/activity/process S/step/equipment		Harm that could occur from these hazards if controls fail or are not in place.	Control measures currently in place to minimise risk	Additional control measures needed to reduce risk further	•		

EMERGENCY	INHERENT HARM	EXISTING CONTROL MEASURES	PROPOSED CONTROL MEASURES	TARGET DATE To implement proposed controls	RESIDUAL RISK LEVEL (High / Medium / Low)
List and describe foreseeable potential emergency situations (e.g. fire, spill, personal injury)	Harm that could occur from these hazards if controls fail or are not in place.	Control measures currently in place to minimise risk	Additional control measures needed to reduce risk further		
Fire from electricity	Burns from fire	Fire blankets, fire exhausts and sprinklers	Handle with care	Medium	

(4) SIGNATURES

Confirm that:

- In case my project is entirely desk/computer-based, I will inform my academic advisor and arrange for him/her to sign this section. If not, I will fill in all sections of this form.
- Health, safety and environmental hazards arising from this project are identified and their risks assessed.
- Control measures will be implemented to reduce risks to an acceptable level.
- Safe work information and training will be provided, as required.
- As new hazards arise during the life of the project, risks will be re-assessed and control measures implemented.

Student - Name	Signature	Date
Jeong Bin Lee		13/04/2021
Academic advisor - Name	Signature	Date
Dylan Lu		13/04/2021

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Appendix – A

HOST ORGANISATION HEALTH AND SAFETY CHECKLIST FOR ORGANISATION HOSTING UTS STUDENTS

This checklist is to be completed prior to hosting UTS students in host organisations for any course related project work.

It should be returned from the host organisation at least two (2) weeks prior to intended commencement of the project work.

By completing this checklist you assure UTS that our students are in safe hands.

[Guidance notes on completing this checklist](#)

SECTION 1

THIS SECTION IS TO BE COMPLETED BY THE UTS ACADEMIC ADVISOR PRIOR TO SENDING THIS FORM TO THE HOST ORGANISATION

Details of University academic advisor

Name	
Faculty/Unit	
Telephone	
Email	

SECTION 2

THIS SECTION IS TO BE COMPLETED BY THE HOST ORGANISATION ACCEPTING UTS STUDENTS

Name of host organisation	
Address	
Telephone	
Email	
Summary of host organisations business	

TO BE COMPLETED BY THE HOST ORGANISATION

The organisation has an accredited H&S Management System (AS/NZS 4801, OHSAS 18001, ISO 45001 or similar) and all workers are covered by insurance

Yes No

If "Yes", skip direct to Declaration.

IF "NO", COMPLETE THE FOLLOWING**HOST ORGANISATION HEALTH AND SAFETY COMPLIANCE CHECKLIST****INDUCTION AND TRAINING**

All new employees and workers (including student interns) are provided with a safety induction and training in safe work practices appropriate to the activities to be undertaken.

Yes No

EMERGENCY MANAGEMENT

There is a formal emergency action plan which has been communicated to all workers as part of the induction process.

Yes No

The organisation will maintain a register of emergency contact details for hosted UTS staff and students.

Yes No

FIRST AID

First aid facilities are available and provided to injured workers.

Yes No

ACCIDENTS/INCIDENTS

There is an accident/incident and hazard register maintained for the organisation which details remedial action taken.

Yes No

WORK ENVIRONMENTS AND ACTIVITIES

Health and safety risks associated with work practices are identified and controlled

Yes No

Regular inspections of work environments are conducted to identify and control health and safety hazards

Yes No

INSURANCE

Workers at this workplace are covered by insurance

Yes No

HOST ORGANISATION DECLARATION

To the best of my knowledge, the above statements are true and correct.

Signed		Name	
Position Title		Date	