Use this form when assessing the *risks* of a task or process activity

Name of task or process activity:	2016 Outback Challenge - Medical Express	Location where activity is to be carried out:	South East Queensland
Description of task or process activity:	Autonomous flight of an Unmanned Aerial Vehicle		
Research or workgroup name:	University of Melbourne Autonomous Systems Program	Department:	
Name(s) of person(s) conducting risk assessment:	Matt De Bono, Alex Daraio, Shanon Loveridge, Wesley Lim	Date of assessment:	1/9/2015
Health & Safety Rep (if included in assessment):	Note: Health & Safety Reps are members of the MSE OHS Committee, not a person from the local area/workgroup assigned a safety role		
List any current measures in place to make the activity safe: (ie: training program, operating procedures, guards, previous experience)			

Risk Assessment Matrix - Use the matrix below to determine the risk of any identified task hazards.

Step 1 – Likelihood of hazard occurring

	Descriptor	Description
A	Almost Certain	The hazard is expected to occur on an annual basis
B	Likely	The hazard has occurred several times or more in your career
C	Possible	The hazard might occur once in your career
D	Unlikely	The hazard does occur somewhere from time to time
E	Rare	Heard of something like the hazard occurring elsewhere

Step 2 – Potential consequence of hazard occurring

	Health & safety	Environmental
V	**Catastrophic** – multiple fatalities or significant irreversible injuries/illness to >50 people	Very serious, long term environmental impairment of ecosystem functions.
IV	**Major -** Single fatality and/or severe irreversible disability (>30%) to one or more persons	
III	**Moderate** – Moderate irreversible disability or impairment (<30%) to one or more persons	Serious medium-term environment effects
II	**Insignificant** – Reversible disability requiring hospitalization or medical treatment by doctor.	Moderate, short term effects but not affecting ecosystem functions
I	**Negligible** – First Aid, or no medical treatment required	Minor effects on biological or physical environment

Step 3 – Risk rating calculator

Likelihood	Consequence I	II	III	IV	V
A	Medium	High	High	Very high	Very high
B	Medium	Medium	High	High	Very high
C	Low	Medium	High	High	High
D	Low	Low	Medium	Medium	High
E	Low	Low	Medium	Medium	High

When determining risk control measures, work through the hierarchy of control below, starting with "can the hazard be eliminated?"

Elimination	Can the hazard be eliminated so as to not become a risk?
Substitution	Can a less dangerous process, chemical or material be used to reduce the risk?
Isolation	Can distance, barriers or interlocking devices be used to reduce the risk?
Engineering	Can an engineering device such as guarding, ventilation or mechanical aides be used to reduce the risk?
Administration	Can signs, instructions or training be used to reduce the risk?
Personal Protective Equipment	Can the use of Personal Protective Equipment reduce the risk?

1. Split the whole task or process activity down to its individual steps or sub-tasks and think about the potential hazards from each step or sub-task.
2. Assess the risk of the task – if there are already measures in place to make the activity safe, assess with those measures in place.
3. List the measures to be used to control the risk. The control measure can affect the consequence, likelihood or all risk factors. Refer to the "Hierarchy of Control" on page 1.
4. Re-assess the "Risk" of the hazard occurring with the control measure in place (residual risk) to demonstrate that the control measure will reduce risk.
5. Prioritise the "Control Measures" in order of the priority in which they are to be applied. List the name of the person responsible for implementing the Risk Control and the date by which it is due to be completed.
6. Review the risk assessment and the effectiveness of the control measures after the task is completed (for one-off tasks) or within 3 months for on-going tasks.

Step or sub-task description	Hazards associated with step or sub-task	L	C	Risk rating	Control measure	Residual risk rating	Risk Control Priority High = <1 week Med = 1wk – 3 mths Low = >3 mths	Person responsible for risk control & date to be implemented by
Example: *Once a week carrying 20L of corrosive chemical from store to lab in open bucket*	*Spillage onto skin causing burn.*	*C*	*III*	*High*	*Purchase and use a closed container and trolley to transport chemical.*	*Low*	*High priority*	*B. Oddie* *Suitable containers and trolley to be purchased by 11/10/12*
Electrical Issues	Electrocution	Possible	Insignificant	Medium	Safety connections to mitigate risk of skin contact with electrical terminals	Low	High priority	Completed
	Impact to batteries causing fire	Possible	Insignificant	Medium	Batteries securely fastened and cushioned inside aircraft	Low	High priority	Ongoing
	Loss of power to motors	Possible	Insignificant	Medium	Immediately engage flight termination	Medium	High priority	Ongoing
Inflight Issues	Autopilot failure or lock-up or Aircraft out of control	Possible	Insignificant	Medium	Immediately disengage power	Medium	High priority	Ongoing
	Loss of GPS link only to GCS	Likely	Insignificant	Medium	Land immediately and reboot system	Low	High priority	Ongoing
	Loss of telemetry/radio link only to GCS	Likely	Insignificant	Medium	Land immediately and reboot system	Low	High priority	Ongoing
	Loss of both telemetry and GPS to GCS	Possible	Insignificant	Medium	Immediately engage flight termination	Low	High priority	Ongoing
	GCS failure - aircraft loses communication with GCS	Possible	Insignificant	Medium	Land immediately, await reconnection with GCS	Low	High priority	Ongoing
	Geofence breach	Possible	Insignificant	Medium	Immediately engage flight termination	Low	High priority	Ongoing
Ground Issues	Aircraft not operational or not controllable	Possible	Insignificant	Medium	Activation of emergency stop switch	Low	High priority	Ongoing
General Issues	Risk of injury to persons near aircraft	Possible	Insignificant	Medium	Arming switch to engage aircraft 1 minute after activation to allow persons to move, 30m "safe radius" around Outback Joe	Low	High priority	Ongoing
	☐ **Safety incident (ie injury) occurs as a result of conducting the experiment with all Risk Controls above being utilized.**				**Tick the controls that are present:** ☐ **Uom Emergency Procedures** ☐ **Local area evacuation procedures** ☐ **First Aid Kit available** ☐ **Special first aid kit item required (refer to MSDS)** **Describe special first aid item needed:**			