Program Risk Assessment

Title: Virtual/Augmented Reality Activities	Authorized By:
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Risk Assessment prepared by: Adrian Borg

Date of Assessment: 12/02/2024

Activity Type: Normal Program Activity

Reviewed by: Liam Mudge
Date of Review: 11/07/2024
Due for next review: February 2025

Location of Activity:	***HAZARDS***	***Control***
• VR Lab • Presentation Space • Advanced Manufacturing • New Energies	• Electrical • Slips/trips/falls • Entanglement • Ergonomic • Human • Biological • Collision • Other	• Training/Induction • Supervision • Safe work procedures • Face Shield/Mask • Safe work zones

Based on the Risk Assessment this activities level of risk is considered:	**VERY LOW**

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Workflow

Students undertake activities using Augmented and Virtual Reality devices, these devices augment the augment the visual/audible reality of users layering effects over the user's experience of their surroundings. Or they occlude the surrounding environment from the user providing a fully immersive, digital experience. Both technologies can result in "cyber sickness" where users become disorientated and can experience effects similar to motion sickness.
Users may become overwhelmed by the stimulation, entangled by cables, collide with other users/bystanders or obstacles. VR/AR systems may also pose a photosensitive trigger risk for some users.
Users are instructed in the safe operating VR/AR controls and system features, such as digital perimeter fencing, and the use of spotters as required for user activities.
Users are also monitored to ensure the environment being used dose not induce excessive physical or psychological strain.

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Chemical Hazards

Are there any chemical hazards involved with this activity? If YES, please answer the following form.	NO
Chemical Hazard Controls	
• I have consulted the Victorian Department of Educations Guidance Sheet 3 Prohibited and Restricted Chemicals.	NA
• Banned and restricted hazardous chemicals will not be used?	NA
• No explosive reactants will be used or explosive products generated.	NA
• I understand the risks of the practical experiment and will undertake this practical in a 'wet area'?	NA
• I have obtained the safety data sheets for reactants and understand the accidental spillage or exposure, emergency response and first aid information?	NA
• Quantities of flammable reactants are kept to minimum and ignition sources are eliminated?	NA
• All hazardous chemicals and decanted products are labelled appropriately?	NA

If you answer 'False' to any of the above questions, do not carry out practical experiments until the matter has been resolved.

- I will not carry out the practical experiment if extreme or high chemical risks exist.
- I have considered all chemical exposure routes of the eyes, skin, inhalation, ingestion and injection to be used and generated.
- I have located and linked all relevant MSDSs for Chemicals used in this activity.

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Biological Hazards

Are there any Biological hazards involved with this activity? If YES, please answer the following form.	Yes
Biological Hazard Controls	
• Recommended banned and restricted hazardous biological agents will not be used?	NA
• Biological agents used are recommended for the age group undertaking the practical experiment?	NA
• I understand the risks of the practical experiment and will undertake this practical in a 'wet area'?	NA
• I have obtained relevant safety data sheets for agents being used and understand the accidental spillage or exposure, emergency response and first aid information?	NA
• All hazardous agents and mediums are labelled appropriately?	NA

If you answer 'False' to any of the above questions, do not carry out practical experiments until the matter has been resolved.

- I will not carry out the practical experiment if extreme or high biological risks exist.
- I have considered all chemical exposure routes of the eyes, skin, inhalation, ingestion, and injection to be used and generated.

List the biological agents to be used and generated.

Identify key hazard information from safety data sheets, control measures to be undertaken and disposal requirements.

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Organism being used	Organism type	State of organism	Drug resistance?	Control measures	Waste treatment	Notes
Human contact						Shared use of face masks allow for potential of user cross contamination

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Risk Assessment Matrix

Assessing OHS Risks

Risk assessments in matters of Occupational Health and Safety* are based on 2 key factors:

- The severity of any injury/illness resulting from the hazard(s), and
- The likelihood that the injury/illness will actually occur.

**Assessment of risk level based on likely severity and probability of harm*

		LIKELIHOOD			
		Very Unlikely Could happen, but probably never will	**Unlikely** Could happen, but very rarely	**Likely** Could happen sometime	**Very likely** Could happen any time
SEVERITY	Death or permanent disability	MEDIUM	HIGH	EXTREME	EXTREME
	Long-term illness or serious injury	LOW	MEDIUM	HIGH	EXTREME
	Medical attention and short-term incapacity	VERY LOW	LOW	MEDIUM	HIGH
	First aid needed	VERY LOW	VERY LOW	LOW	MEDIUM

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EXPOSURE

Identify all groups who will be exposed to risks associated with this activity as well as any staff/specialist skills required to deliver this program e.g. Chocolate may require the assistance of some lab technician and personnel trained to operate the 3d printers/CNC machine.

- Program Staff
- Technical Staff
- Students
- Teachers

STEM Educator Notes	Reviewer Notes
• The severity is rated as 'Medical Attention and short-term incapacity', mainly due to the risk of epileptic episode. The other hazards discussed on previous sheets would cause at worst a 'First aid needed' injury. The likelihood would be rated as very likely for the first aid injury time and unlikely for the epileptic episode risk. This puts the assessed risk at 'Medium'	

HAZARDS

- Electrical
- Slips/trips/falls
- Entanglement
- Ergonomic
- Human
- Biological
- Collision
- Other

Based on the Risk Assessment Matrix, identify the level of hazard	**Medium**

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RISK CONTROLS

List major hazards identified and their control measures to be implemented.

Hazards	Control	Type	Notes
• Electrical • Slips/trips/falls • Entanglement • Ergonomic • Human • Biological • Collision • Other	• Training/Induction • Supervision • Safe work procedures • Face Shield/Mask • Safe work zones	• Administration • PPE • Isolation	• Users advised to take breaks and be seated if nauseated. • Supervision of VR/AR users. • Work under desks minimised able staff with experience in task. • Slides used to encourage users to be aware of each other's space and wellbeing. • Single use face shields provided for all users. • "Boundry" mesh system used in VR to control the space. • Students are advised of the photosensitivity risk in the slides and asked to self-exclude if in danger.

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Notes: Users are verbally/visually instructed on safe and best practice for laboratory activities. The activity is demonstrated, students are then observed in completing procedure safely. All students are then supervised while conducting activities.
There are quite a few administrative controls needed to manage the risks in this activity and reduce both the risk severity and risk likelihood. With a combination of controls mentioned, the residual risk level is considered acceptable for the activity to run.

Based on the Risk Assessment this activities level of risk is considered.	**VERY LOW**

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Reference Documentation

List all reference documentation, HIRACs and MSDS forms applicable to this activity. If HIRAC does not already exist, the creation of a new HIRAC may be required.

HIRACs

- https://ballarattechschool.vic.edu.au/sites/default/files/2024-01/BTS_VR_AR%20HIRAC.pdf

MSDSs

-

Other Activity/Reference Material

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Activity Approval

This activity has been reviewed and determined that it can be carried out safely. Where risks have been identified appropriately mitigation measures will be implemented.

Completed By: Adrian Borg **Date Completed:** 11/07/2024

Reviewed by: Liam Mudge **Date of next review:** February 2025

Reviewed by supervisor, where high risks are involved.

4. Risk Assessment Signoff		
Authorised By: Liam Mudge	Signature: L. Mudge	Date: 11/07/2024