**UWA ELEC5550**

2-Way Free-Space Optical Communication System

Team 0-26

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**Team0-26\_RiskAssessment**

**Volume 1**

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**UWA Supervisor:** Osaka Rubasinghe

**Group Meeting Time:** Thursday 4pm (Stream 2)

**Version 2.0**

### Revision History:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date | Version | Description | Author | QA Review |
| 03-Aug | 1.0 | Workshop Submission | Team 0-26 | N/A |
| 05-Aug | 2.0 | Added Cover Sheet & Revision History | Jonathan Chivers | N/A |
|  |  |  |  |  |

**GENERAL**

**SAFETY RISK ASSESSMENT**

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tab between fields MAKING ENTRIES BY typing INto the grey highlighted boxes. WHEN CLICKED NUMERIC FIELDS OFFER DROP-DOWN SELECTIONS

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| **PART 1 – ACTIVITY / TASK DESCRIPTION** - Use additional sheets if necessary - Peer check must be by person familiar with the planned activity | | | | | |
| **Location**  Math: [151] Monadelphous EECE Lab | | **Assessment Date**  04/08/2025 | **Expiry Date** (max. 5 years)  14/11/2025 | **Assessor**  Team 0-26 | **Peer checked by** |
| **Task / Activity / Project Title**  ELEC5550 Design Project – 2-Way Free-Space Optical Communication System | | | | | **How many persons will be involved?** 6 |
| **Description** (alternatively, a separate METHOD STATEMENT or equivalent detailed description may be referenced from here if a copy is attached)  See method statement document attached: Team0-26\_MethodStatement\_v1.0 | | | | | |
| **Workplace conditions** (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).  Workspace has a single exit point.  The windows are on the far sides of classroom and it doesn't appear to be easily opened. Moreover, no emergency hammer was available.  There is a locked storeroom on left hand corner and two accessible storerooms on right hand corner on entering the workspace. They connect to other classrooms.  Powerpoints are situated approximately at every 2 meters along the walls with RCD protection (R22 mostly).  Upon entry, the whiteboard is situated on the left hand side of the front wall. The TV is next to the whiteboard, positioned at the center of that same wwall. The right hand side wall is an open space for the projector screen.  The workspace is entirely carpetted.  The escape route is well labelled and clear of any obstruction. The evacuation plan, fire extinguishers and fire hose are outside of the workspace.  The workspace is well ventilated, but lacks the abililty to adjust the vent flow direction and power.  The workspace does not have an emergency stop power button.  There is a hand sanitiser station before the entrance of the workspace.  A phone is available to call for any emergency services, but it does not work.  Fire detectors are installed on the ceiling.  The closest available defibrillator is in the Physics building. The closest first aid kit is situated in the room 58. | | | | | |
| **Related Documentation / Guidance** (this may include referenced articles, legislation, standards or codes which must be specifically highlighted) | | | | | |
| Method Statement:  SOPs (for equipment):  Other: | Team0-26\_MethodStatement\_v1.0 | | | | |

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

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| **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** |
| **Catastrophe** | Multiple fatalities | **100** |  | **Almost certain** | The most likely outcome if the event occurs | **10** |
| **Disaster** | A fatality | **50** |  | **Likely** | Not unusual and quite possible to occur | **6** |
| **Very serious** | Permanent disability or ill health | **25** |  | **Unusual** | Possible but doubtful | **3** |
| **Serious** | Non-permanent injury or ill health | **15** |  | **Remotely possible** | A possible coincidence | **1** |
| **Important** | Medical attention needed | **5** |  | **Conceivable** | Has never happened in years of exposure, but possible | **0.5** |
| **Noticeable** | Minor cuts, bruises, sickness | **1** |  | **Practically impossible** | Not known to ever have happened anywhere | **0.1** |

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

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| **RISK SCORE**  **C** x **L** x **E** = | **RISK RATING** | **CONTROL STRATEGIES**  (to mitigate risk from the identified hazard) |
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| >600 | VERY HIGH | * Immediate action required. * Do not proceed with task/activity until control measures have been implemented. * Notify Supervisor, Safety & Health Representative and Head of School. * Arrange continuous review and monitoring. |
| >300 to 600 | HIGH | * Consider not carrying out task/activity until control measures have been implemented as soon as practicable. * Notify Supervisor and Safety & Health Representative. * Action plan to reduce risk. * Monitor every subsequent exposure in addition to any other regular monitoring regime. |
| >90 to 300 | MEDIUM | * Implement immediate action to minimise potential for injuries. * Notify Supervisor to organise remedial action before commencing activity. |
| 90 or Less | LOW | * Required action to be agreed with Supervisor. * Remedial action to be taken as soon as practicable and within a month. |
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| **PART 2 – IDENTIFY HAZARDS, ASSOCIATED RISK RATINGS AND CONTROL STRATEGIES** | | | | | | | | | | | | | |
| 1. Pick out the hazards which are relevant for this task or activity.  2. Click entry fields for drop-down selection of inherent risk values for C, L and E.  3. In the comments box, describe when and where the hazard is present and other notes.  4. Specify the control measure type from the Hierarchy of Control (top right)  5. Under Control Measures give a description of the control to be implemented.  6. 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** | **INHERENT RISK** | | | | | **COmments** | **CTRL** | **Control MEASURES** | **RESIDUAL RISK** | | | | |
| **HazardS**(editable) | **C** | **L** | **E** | **=** | | (when and where hazard is present) |  |  | **C** | **L** | **E** | **=** | |
| **GENERIC** - associated with the activity | | | | | | | | | | | | | |
| Slip and trips | 5 | 1 | 3 | 15 - | L | Carpet less likely for slips, power cables for laptops might be present, table and chair leg | **IN** | Warn others and pay closer attention | 5 | 0.5 | 3 | 7.5 - | L |
| Sustaining cuts or abrasions | 1 | 6 | 5 | 30 - | L | Handling PCB components can lead to minor cuts | **PPE** | Wear gloves | 1 | 0.5 | 5 | 2.5 - | L |
| Burns | 1 | 0.5 | 1 | 0.5 - | L | Moderate burn from soldering iron, and minor burn from PCB components overheating. | **PPE** | Wear heat protection gloves | 1 | 0.1 | 1 | 0.1 - | L |
| Asphyxiation | 5 | 1 | 3 | 15 - | L | Smoke from components burning or soldering | **EN** | Maintain ventilation from exhaust fans | 5 | 0.1 | 3 | 1.5 - | L |
| **ELECTRICAL** | | | | | | | | | | | | | |
| High voltage equipment | 50 | 0.5 | 1 | 3 - | L | Unlikely to be in contact with any high voltage equipment. . | **EL** | All equipment should be enclosed/isolated to prevent contact | 5 | 0.1 | 0.5 | 2.5 | - L |
| 240V equipment | 50 | 1 | 3 | 150 - | M | Hazard is present when plugging in equipment to power points. Unlikely to be exposed to 240V elsewhere. | **EL** | Power points equipped with RCD protection | 5 | 0.1 | 0.5 | 2.5 | - L |
| **CHEMICALS OR SUBSTANCES** | | | | | | | | | | | | | |
| Emissions | 1 | 6 | 3 | 30 - | L | Fumes from soldering. Workspace windows are not easily opened. Soldering with toxic materials (e.g. lead) - Sickness | **PPE** | Wear a mask when soldering and ensure proper ventilation. | 1 | 1 | 3 | 3 | - L |
| **WORKING ENVIRONMENT** | | | | | | | | | | | | | |
| **OTHER HAZARDS** | | | | | | | | | | | | | |
| Laser Radiation | 25 | 1 | 3 | 75 | - M | Class 1M laser will be used in the design and can lead to retina damage when looked under magnification. | **AD/EN** | EN - Limit laser to Class 1M  AD – Keep clear from laser when testing | 25 | 0.1 | 3 | 7.5 | - L |
|  |  |  |  | 0 | - |  |  |  |  |  |  | 0 | - |
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| **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       . (enter period) | | | |
|  | **NAME** | **SIGNATURE** | **DATE** |
| **SUPERVISOR:** | Head of School - Engineering |  |  |
| **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