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| UTS SAFE WORK METHOD statement (SWMS) |

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| 1. **FACULTY/SUBJECT** | |
| Faculty/Subject title | 41013 Industrial Robotics |
| Subject supervisor/coordinator | Gavin Paul |
| SWMS prepared by | Lachlan Masters – 13604537,  Sangmim Song – 12204350,  Sai Khuan Main - 12837769 |

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| 1. **WORK ACTIVITY DESCRIPTION** | | | | | | |
| Describe the work activity E.g. Operating, Handling, Using.. Include names of hazardous equipment, substances or materials used,  and any quantities and concentrations of substance(s) or reaction products. | Working activity includes handling kitchen crockery and placing set items in a industrial dishwasher tray. Following this the worker is required to leave a loading/ stacking area for set tray to allow for a robot to operate kitchen dishwasher. This robot, which the worker is required to understand associated risks of working with such robot, will move the tray from loading/ stacking area into dishwasher, placing tray into dishwasher, closing dishwasher lid, opening when completed and placing tray into drying rack. Following this, the worker is required to take tray out of drying rack (possibly heavy lifting) and unload set crockery items.  The main hazardous equipment include the operating robot, and operating dishwasher which can eject hot water, sharp objects from crockery and kitchen knives and hot pots & pans from kitchen. | | | | | |
| 1. HAZARDS: Choose those hazard types that will need to have control measures in Section 4 | | | | | | |
| **Work Environment**   * Working in Remote Locations * Working Outdoors/fieldwork * Clinical/Industrial setting * Poor ventilation/Air quality * Temperature extremes * Working at Height * Slip/Trip/Fall hazards | | **Plant**   * Noise * Vibration * Working with compressed air * Lifts Hoists or Cranes * Moving parts (Crushing,friction, cut, stab, shear hazards) * Pressure Vessels or Boilers | | **Chemical**   * Hazardous Chemicals use * Skin/eye irritant * Sensitiser * Mutagen * Carcinogen * Toxic to reproduction * Aquatic toxicity * Toxic * Corrosive * Dangerous when wet | | **Ergonomic/Manual Handling**   * Repetitive or awkward movements * Lifting heavy objects * Over reaching * Working above shoulder or below knee height * Poor workstation set up |
| **Electrical**   * Plug in equipment * High voltage * Exposed wiring * Exposed conductors | | **Radiation**   * Ionising Radiation * Non-ionising radiation (Lasers, Microwaves, Ultraviolet light) | | **Biological**   * Sharps/Needles * Cytotoxins * Pathogens/infectious materials * Infectious materials * Communicable diseases * Animal/insects * Work with fungi/bact/viruses | | **Psychosocial**   * Aggressive or violent clients/students * Working in isolation * Working with timeframes * Staffing issues |
| 1. **CONTROLS MEASURES: Choose those that apply for hazards identified** | | | | | | |
| **Eliminate/Isolate/Substitute / Engineering Controls**   * Remove hazard * Restrict access * Redesign equipment * Guarding / Barriers / Fume Cupboard / exhaust * Biosafety cabinet * Use safer materials/substances * Ventilation * Regular maintenance of equipment * Redesign of workspace / workflow | | | **Admin specific: Licenses/permits Work Methods**   * Training Information or Instruction * Licensing or certification of operators * Test and tag electrical equipment * Restricted access * Regular breaks * Task rotation * Work in pairs * Document Chemical risk assessment * Ladder / Sling register | | **Emergency Response Systems**   * First aid kit * Chemical spill kit * Safety shower * Eye wash station * Emergency Stop button * Remote Communication Mechanism | |
| **Other controls not listed**  Pressure pad as an emergency response system. | | | | | | |
| 1. **PPE REQUIRED (Tick those that apply)** | | | | | | |
| http://www.orr.uts.edu.au/images/pictograms/protection/hand.pnghttp://www.orr.uts.edu.au/images/pictograms/protection/face.pnghttp://www.orr.uts.edu.au/images/pictograms/protection/eye.pnghttp://www.orr.uts.edu.au/images/pictograms/protection/hearing.pnghttp://www.orr.uts.edu.au/images/pictograms/protection/foot.pnghttp://www.orr.uts.edu.au/images/pictograms/protection/ppe.png | | | | | | |
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| http://www.orr.uts.edu.au/images/pictograms/protection/respiratory.pnghttp://www.orr.uts.edu.au/images/pictograms/protection/head.pnghttp://www.orr.uts.edu.au/images/pictograms/protection/hair.png | | | | | | |
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| 1. **EMERGENCY EQUIPMENT** | | | | | | |
| http://www.orr.uts.edu.au/images/pictograms/equipment/eyewash.pnghttp://www.orr.uts.edu.au/images/pictograms/equipment/spill.pnghttp://www.orr.uts.edu.au/images/pictograms/equipment/shower.png | | | | | | |
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| 1. **work activity steps** |
| **before you start:**   * Undertake training * Observe and complete all safety equipment * Understand how robots work * Ensure you only enter robot workspace when it is off * Learn locations of emergency stop mechanisms * Understand how to stack the dishwasher tray * Observe and understand all associated risks   **steps in work activity:**   1. Turn on robot 2. Place crockery in dishwashing tray 3. Leave stacking area for dishwashing tray 4. Notifiy robot of full tray 5. Place tray in stacking area once robot is in idle position 6. Repeat steps 2-5   **emergency procedures:**   * Press emergency button * Notify security or dial 6 using the UTS internal phone   **training required:**   * Understand the task the robots are performing, the safety equipment provided and the inform of the working space of robot. |

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| 1. **sign off** | | |
| **prepared by:**  **NAME: Lachlan masters**  **SAngmim song**  **Sai khuan main** | **Lab Supervisor**  **Name: Michael Lee** | **Date: 23/04/22**  **Review Date:** |