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| UTS SAFE WORK METHOD statement (SWMS) |

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| 1. **FACULTY/SUBJECT** | |
| Faculty/Subject title | Faculty of Engineering, Robotics |
| Subject supervisor/coordinator | Gavin Paul |
| SWMS prepared by | Esteban Gabriel Andrade Zambrano |

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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. | Controlliing the motion of one UR3 and a Linear UR5 in in order to graps 9 bricks and build a 3 by 3 wall. | | | | | |
| 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** | | | | | | |
| 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:**   * **ENSURE THAT THE WORKSPACE IS FULLY SET UP. eNSURE TO USE THE GUIDE ON HOW TO ASSEMBLE THE ROBOTS IN THE PROPOSED LOCATIONS** * **ENSURE THE ROBOTS FOLLOW THE PROPOSED WIRING** * **TEST EMERGENCY STOP BUTTON** * **ENSURE THAT ROBOTS WORK AS EXPECTED AND TEST THE CONTROLLERS** * **ENSURE PPE IS USED BEFORE START CONFIGURING THE ROBOTS** * **ENSURE ROBOTS ARE PROPERLY CONFIGURED FOR THE GIVEN TASK** * **ENSURE BRICKS ARE PLACED WITHIN REACH OF BOTH ROBOTS**   **steps in work activity:**   * **cLOSE THE FENCE ONCE OPERATIONS START** * **MONITOR AND OBSERVE ROBOT OPERATION** * **CHECK THAT WALL IS BUILT** * **VERIFY COMPLETITION OF TAKS BEFORE REMOVING THE WALL FROM THE TABLE**   **emergency procedures:**   * **OPEN FENCE** * **PRESS EMERGENCY STOP BUTTON**   **training required:**   * **ENSURE PROCESS ON HOW TO CONTROL AND INSTALL THE ROBOT HAS TO BE LEARNT BEFOREHAND** * **ENSURE PROCEDURE TO ENSURE CONNECTION BETWEEN ROBOTS IS ESTABLISHED.** * **ENSURE PROCESS ON HOW TO INSTALL THE ROBOT IN DIFFERENT POSITIONS IN THE WORKSPACE.** |

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| 1. **sign off** | | |
| **prepared by:**  **NAME: Esteban Andrade** | **Supervisor**  **Name: Gavin paul** | **Date: 4/09/2020**  **Review Date: 06/09/2020** |