UTS SAFE WORK METHOD STATEMENT (SWMS)

1. FACULTY/SUBJECT

Faculty/Subject title	41013 Industrial Robotics
Subject supervisor/coordinator	Gavin Paul
SWMS prepared by	Michele Liang (13980230), Rohit Bhat (14160232), Yves Gayagay (14278055)

2. 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.	**Use the mechatronics lab to operate real robotic arms to carry out tasks that are approved by the supervisor.** **The robot is aimed to be used in a kitchen environment, where it is expected to place packaged burgers and fries, filling empty cups with drinks using the drink machine, and finally place all of them on a tray to be served to customers. The trays will have exactly one of each (1 burger, 1 fries, 1 drink).** **However, as the lab does not allow food or drinks the food items can be replaced using placeholder items such as items with similar dimensions or weight. Some examples would be replicas made with modelling clay or toys.**

3. 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

4. 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

5. PPE REQUIRED (Tick those that apply) ✓


EYE PROTECTION ✓


HEARING PROTECTION


CLOSED-IN FOOTWEAR MUST BE WORN ✓


HAND PROTECTION


FACE SHIELD


PROTECTIVE CLOTHING


RESPIRATORY PROTECTION


LONG HAIR MUST BE CONTAINED ✓


HEAD PROTECTION

6. EMERGENCY EQUIPMENT

7. WORK ACTIVITY STEPS

BEFORE YOU START:

- Remember to wash hands and wear clean gloves
- Check the functionality of all equipment, with no wiring exposed
- Survey the workspace for obstacles
- Ensure the robot works without collisions in the simulation
- Get approval for code from supervisor
- Read through the robot's manual and datasheets to understand its limitations
- Ensure familiarity with the operating procedures

STEPS IN WORK ACTIVITY:

1. Assure the pre-requisites stated above are checked before commencing
2. Operate the robot with supervision
3. Upload the code into the robot
4. Observe the robot from a safe distance, while identifying potential hazards that may come up during operation and address them accordingly.
5. Make sure the robot has shut down before engaging directly with it.
6. Before leaving, clean up the workspace and make sure the robot is turned off and stored properly.

EMERGENCY PROCEDURES:

- Press emergency button
- Notify security or dial 6 using the UTS internal phone
- Notify 000 in case of dire emergencies

TRAINING REQUIRED:

- Robot operation (under supervision)
- Robot code self-approval training by the supervisor
- Lab inductions

8. SIGN OFF

PREPARED BY:

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LAB SUPERVISOR

NAME: MICHAEL LEE

DATE: 15/10/2023

REVIEW DATE: