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Risk Assessment Details ID: RA_CCDS_164610 Rev No: 1  Draft ID: 0 			
<b>User's School/ Department/ Student Activity Group:</b>	College of Computing & Data Science	<b>Project Title:</b>	Risk activities in CCDS
<b>Workplace:</b>	College of Computing & Data Science	<b>Other workplace:</b>	-
<b>Location:</b>	All the facilities within the CCDS Building.	<b>Conducted By:</b>	Lam Hoy Kong(ASHKLAM);Chua Ngee Tat(ASNTCHUA);Wan Chee Heng(ASCHWAN);Wong Lee Chin(ASLCWONG);Teo Choo Eng(ASCETEO);Muhammad Nashruddiin(NASHRUDDIIN);Haslina Bte Mohamad(ASHASLINA)
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<b>Status:</b>	Approved	<b>Comments:</b>	-

1. Hazard Identification					2. Risk Evaluation				3. Risk Control				
1a.	1b.	1c.	1d.	1e.	2a.	2b.	2c.	2d.	3a.	3b.	3c.	3d.	3e.
No.	Work Activity	Hazard	Sub Hazard	Possible Accident/Ill Health & Person-at-Risk	Existing Risk Control	S	L	R	Additional Risk Control	S	L	R	Follow Up by & date
1	Use of Step Ladder	Physical	Others:Unstable footing during the climb on the ladder.	Others:Body & Limbs injury	1) Ensure an assistant is around to support during the climb. 2) Wear appropriate footwear.	4	1	4	NA				
		Mechanical	Others:Ladder collapse due to uneven ground.	Others:Body & Limbs injury	1) Check on the ground condition. 2) Ensure condition of ladder is free from damage.	4	1	4	NA				
2	Perform work inside Resource room.	Physical	Others:Temperature fluctuation	Others:Mild hypothermia	1) Install temperature monitoring device to ensure the room temp is between 18C to 25C. 2) Place notice at the entrance of the resource room to remind user on the cold temperature.	3	1	3	NA				
		Electrical	Others:Current overload	Others:Fire	1) Prevent system overheat by maintaining the BTU Heat Load record for all the system in the resource room;	4	1	4	NA				

			2) Regularly inspect for damaged wiring to prevent electrical shorts, sparks, or overheating. 3) Ensure newly added server electrical loads are within the supported range of the circuits breaker. 4) Ensure fire suppression system is maintained regularly.				
Physical	Others:Electrical	Electrocution	1) Regular inspections made on cords and outlets for damage. 2) Adhere to OHS SOPs for handling fires. 3) Ensure proper labels on the power cables to identify the power sources. 4) Regular inspection on system, ensure proper grounding. 5) No daisy chain connection permitted when using extension sockets. 6) Evaluate and replace the aging system on expired maintenance coverage for operation.	3	2	6	NA
Ergonomic	Improper lifting or manual lifting	Sprains, strains	1) staff must complete the online safety course on proper lifting techniques. 2) Ensure 2 person are involves in the lifting on any object which is above 10kg.	3	1	3	NA

Physical	Slips, trips and falls hazard	Others:Body & limbs injury	1) Provide sufficient lighting to illuminate the entire workspace. 2) Ensure there are clear, unobstructed pathways throughout the Resource room. 3) Arranged on server racks in order, to reduce the risk of tripping. 4)Display room layout at the door entrance to show designated walkway and exit route. 5) Implement proper cable management.	3	1	3	NA
Others:Fire	Others:Flammable materials	Burns/ scalds	(1) Prohibit flammable items like cardboard boxes, packaging material such as plastics and Styrofoam to exist within the operational rack. (2) Schedule regular inspections and maintenance to ensure the resource room is clean and tidy at all time. (3) Ensure the cabling in the rack is secured to side panel, not obstructing the hot air outlets. (4) Ensure the fire protecting system and equipment are working in optimal condition.	3	2	6	NA
Ergonomic	Awkward posture	Sprains, strains	1) Encourage regular breaks from resource room, and stretching.	3	2	6	NA
Physical	Noise	Noise induced deafness	1) Staff and visitors must use the provided ear protection prior to entering resource rooms. 2) Notices on noise level and mandatory wearing of ear protection to be put up at resource room entrances. 3) Staff must adhere to time limits for working inside resource room as stipulated in SOP. 4) Regularly maintain and service equipment to prevent noise from faulty or worn-out parts.	3	2	6	NA

					5) Noise monitoring to be taken yearly.				
		Others:Security	Others:Unauthorised access	Others:Personal safety against terrorism and threats.	1) Install access control at entrance of the resource room. 2) Install surveillance system to keep video record of the activity at entrance and within the resource room. 3) Deploy visitor sing-in and out system.	2	2	4	NA
3	System testing bench in IT Office	Electrical	Others:Current overload	Others:Fire	1) Prohibit on the use of ring circuit power extension connection. 2) Ensure power extension is with safety approve logo.	3	2	6	NA
4	Soldering of components on Printed Circuit Board (PCB).	Physical	Others:Failure to switch-off soldering iron, causing possible overheating and burning.	Burns/ scalds	a)Request subject co-ordinator which require the use of solder iron to upload video onto NTULearn. b) Provide solder iron base on request by student. c) Lab technician to render assistance if required. d) Introduce Standard operating procedure for use of soldering iron.	2	2	4	NA
		Chemical	Others:Emit smoke during soldering process	Occupational asthma or respiratory illness	1) Used lead free alloy to minimize the smoke. 2) A smoke absorber is also used during the process.	3	2	6	NA
		Electrical	Others:Failure to switch-off soldering iron, causing possible overheating and burning.	Property or equipment damage	a).Display safety notice on the use of equipment. b).Provide video on the use of equipment by the QR code on the notice.	3	1	3	NA
5	Using of bench equipment such as power supply, function generator and oscilloscope.	Electrical	Contact with electrical energy	Electrocution	1) Make sure that safety power cords with fuse are used. 2) All work benches are equipped with circuit breakers. 3) All benches equipment are cased up to prevent user contact with the electronic power boards. 4) Use of output supply DC voltage is less than 10volt.	3	1	3	NA

6	Using tools such as cutters, pliers and ic extractors for lab experiment.	Mechanical	Cut	Limbs injury	a) Users are briefed during first lab session to wear cover shoes when coming to the lab. b) Provide notice on the use of tools and video embedded in QR code for students to learn. c) Lab technician to ensure tools are properly place and organised.	2	2	4	NA
7	Drilling of printed circuit board.	Mechanical	Others: Dust exposure	Eye injury	a) Make sure user wear safety glasses when drilling. b) Drilling is done in an open and well ventilated area.	3	2	6	NA
		Mechanical	Others: Improper handling of miniature drilling machine	Limbs injury	a) Lab technician to render assistance if required; b) Introduce Standard operating procedure for use of drills. c) Provide video on the use of equipment by the QR code on the notice. d) Prevent access to power source of the equipment with a lock case. e) Safety video on the use of drilling machine is uploaded to NTULearn for students learning. f) User must tied up loose hair prior using the machine. g) No loose dressing attire is permitted.	3	2	6	NA
8	Sorting of document and use of paper	Mechanical	Cut	Limbs injury	a) Personnel to handle files and documents with care, avoiding fingers running along the edge of papers. b) Ensure bent plastic folders and those with sharp edges to be discarded	3	1	3	NA
9	Use of paper shredding machine	Mechanical	Cut	Limbs injury	a). Personnel to refrain from wearing frayed clothing or loose jewellery which may lead to entanglement. b.) All ties should be kept away from the machine. c) A proper and safe method of using the shredding machine should be adopt.	3	2	6	NA

					d) Do not use bare hands to remove any shredded paper stuck in the cutter areas. e) Switch off the machine before removing any jammed item. f) Consult with the service technicians if anything is not sure or unclear.				
10	Use of photocopying machine.	Physical	Others:Glare from photocopier	Eye injury	a Ensure that the photocopier cover is always kept closed whenever in operation. b. Avoid looking in the direction of the glare from the photocopier.	1	3	3	NA
		Chemical	Sensitizer or irritant	Occupational skin diseases	a) Ensure that the photocopier is properly maintained and regularly serviced. b) Place the photocopier in a well ventilated area. c) Refrain from sitting or working near the photocopier for long periods of time.	2	3	6	NA
		Chemical	Sensitizer or irritant	Chemical poisoning/ absorption of chemicals or hazardous substances	Wash hands immediately in personnel comes in touch with the toner	2	2	4	NA
		Mechanical	Cut	Limbs injury	a. Do not use bare hands to remove any paper stuck within the tight areas. b. Switch off the machine before removing any jammed item. c. Consult with the service technicians if anything is not sure or unclear.	3	2	6	NA
		Physical	Contact with heated surface	Burns/ scalds	The photocopying machine is properly covered preventing direct contact with users.	1	2	2	NA
11	Dispensing hot water from coffee machine and water dispenser.	Physical	Contact with heated surface	Burns/ scalds	a. Displaying warning sign/notice to take precaution in handling hot water. b. Adopt proper and safe method in using the hot water dispenser. c. Keep hand and fingers away from the nozzle when filling hot water.	3	2	6	NA

					d. Use cups that are able to withstand boiling water and do not fill the cups to the brim. e. Personnel should exercise extra caution when moving around with hot water to prevent splashing on others or toppling the cups.				
		Physical	Slips, trips and falls hazard	Sprains, strains	a. Ensure good housekeeping and clean up any spills immediately b. Ensure signs for wet floors are displayed. c. Upturn carpet to be replaced to prevent tripping. d. Usage of dry mop.	2	3	6	NA
12	Placing of inappropriate container/food inside microwave.	Physical	Explosion	Others: Body injury	Display guidelines and general uses of the microwave.	4	1	4	NA
13	Drinking water while working with computers.	Electrical	Contact with electrical energy	Property or equipment damage	Staff to discourage user from drinking while working on PC.	1	2	2	NA
14	Outward opening of door or window.	Mechanical	Strike against	Others:Body injury	Display notice to advise user to open door/window gently.	3	2	6	NA
15	Punching holes for document to be filled	Mechanical	Crush	Limbs injury	a. Proper usage of hole puncher. b. Personnel not to overload paper for punching. c. Hole puncher to be maintained. d. Personnel to check for stuck items in the hole puncher before usage	1	3	3	NA
		Ergonomic	Repetitive movement	Sprains, strains	a. Personnel to adopt good ergonomics practice like sitting position or table height. b. Job rotations: personnel to avoid prolong repetitive movements and to take breaks in between. c. Personnel to be briefed on proper usage of hole puncher.	3	1	3	NA
16	Use of staplers	Ergonomic	Repetitive movement	Repetitive strain injury	Take regular breaks when the load is too high or seek for assistance from colleagues	1	3	3	NA

17	Filing of documents to allocated files to shelves.	Ergonomic	Improper lifting or manual lifting	Sprains, strains	a. Personnel to break the item into smaller loads when lifting/carrying. b. Bulky items to be kept on lower shelves. c. Adopt correct manual lifting technique. d. Assisted lifting for heavy objects	2	3	6	NA
		Physical	Slip, trip and fall on different levels	Others: Body injury	a. Personnel to use proper and stable step ladder. b. Common use items should not be stored above arm. c. Keep each item load to below 5kg (max of 7kg).	2	3	6	NA
		Mechanical	Strike by falling object	Others: Body injury	a. Reduce the load to be filled. b. Small batches to be filed at any one time. c. Personnel to ensure good housekeeping practice. d. Minimise overhead placement and overhanding objects on shelves and cabinet tops e. Bulky items to be kept on lower shelves. f. Wear close toe shoes to minimize injury.	2	3	6	NA
18	Working in front of computer	Ergonomic	Awkward posture	Sprains, strains	a. Refer to office ergonomics setup guideline and adopt correct posture while using computer. b. Adopt frequent stretching or take a short break when working too long on the workstation. c. Use foot rest or wrist rest if necessary. d. Adjust keyboard, mouse and desktop screen to achieve comfort typing (evaluation of the work station if necessary)	2	3	6	NA
		Ergonomic	Others:Glare from monitor	Eye injury	a. Proper monitor setting of the monitor (brightness, tilt, contrast). b. Adopt good practice (close eyes momentarily, look at distant object and blink	1	3	3	NA



					frequently). c. Conduct an evaluation of the work station if necessary.				
19	Retrieval of files from shelves	Mechanical	Strike by falling object	Others:Body injury	a. Ensure that files are placed properly on the shelves. b. Insert file stoppers when necessary. c. Place heavier files on the lower shelves. d. Avoid overhanging objects on shelves. e. Inspect the location on a regular basis.	2	3	6	NA
		Physical	Slip, trip and fall on different levels	Others:Body injury	a. Use of a stable and appropriate step ladder. b. Check the ladder before each use. c. Refer to guideline to safety use of step ladder.	2	3	6	NA
		Ergonomic	Improper lifting or manual lifting	Back injury	a. Adopt proper work postures and practices. b. Use of step ladder to reach the higher shelves. c. Refer to safe use of ladder guideline. d. Reduce or make more trips for heavier objects. e. Use of trolley or file carts to assist. f. Seek assistance from colleague if necessary.	2	3	6	NA
20	Moving around NTU or to external official events	Physical	Slips, trips and falls hazard	Others:Body injury	a. Do not rush and keep a lookout for hazards b. Avoid wet surfaces where possible	1	3	3	NA
		Mechanical	Strike by moving object	Others:Body injury	a. Practice safe driving and obey traffic safety rules. b. Do not drive when not feeling well c. As pedestrian look out for oncoming vehicles when walking on roads, car parks or crossings.	3	2	6	NA
21	Moving around in the office	Physical	Slips, trips and falls hazard	Others:Body injury	a. Do not place objects along main passageway causing obstruction or tripping. b. Proper management of	1	3	3	NA

					cables and wirings to avoid causing tripping. c. Upturn carpet to be properly place back or replaced.				
		Mechanical	Strike against	Others:Body injury	a. Keep all drawers or cabinet doors closed after use to prevent others from knocking into them. b. Push back any chairs after use.	1	3	3	NA
22	Shifting/moving heavy equipment. e.g.: computers or printers.	Ergonomic	Improper lifting or manual lifting	Sprains, strains	a) Staff in charge of the laboratory must ensure equipment which is above the weight of 10kg for men and 7kg for ladies, must need 2 or more person to carry. b) Use trolleys to shift the equipment from one location to another.	4	1	4	NA
23	Use trolley for transporting	Mechanical	Strike by moving object	Others:Body injury	a. Stacking object cannot block the view of staff while transporting object. b. Control the speed of the trolley while transporting the object.	2	3	6	NA
		Ergonomic	Improper lifting or manual lifting	Sprains, strains	a. Personnel to break the item into smaller loads when lifting/carrying. b. Adopt correct manual lifting technique. c. Assisted lifting for heavy objects to the trolley.	2	3	6	NA
24	Plugging in unauthorized/unapproved (Non BS or no Safety Mark) multiple socket into power socket outlet.	Electrical	Contact with electrical energy	Electrocution	Prohibit to use the unauthorized/unapproved multiple socket.	3	2	6	NA
25	Extending of power extension cord from power extension or multiple socket.	Electrical	Contact with electrical energy	Electrocution	Prohibit daisy chain on extension socket.	3	2	6	NA
26	Use of electrical boiling kettle in cubicle.	Electrical	Others:EC breaker trip resulting from short circuit of the electrical appliance	Property or equipment damage	Discourage user to own electrical boiling kettle and advise him/her to use the hot and cold water dispenser located at each level.	2	3	6	NA

27	Leaving PC/equipment on after office hour.	Physical	Fire	Property or equipment damage	Advise user to switch off computer/equipment after use.	3	1	3	NA
28	Food setup	Physical	Fire	Others:Body injury	a. Handle the candles with care. b. Use tongs if necessary. c. Use the lid of the heated source to extinguish the fire.	4	1	4	NA
29	Conducting audits and inspections at low risk workplace such as offices	Ergonomic	Awkward posture	Sprains, strains	a. Wear comfortable shoes. b. Adopt good ergonomic practice or posture	1	3	3	NA
		Physical	Slips, trips and falls hazard	Others:Body injury	a. Be careful when walking around audit site, look out for hazards. b. Wear a good pair of shoes, preferably anti slips.	1	3	3	NA
		Mechanical	Strike by falling object	Others: Body injury	a. Be careful and alert of the surroundings when walking around the audit site. b. If necessary, inform staff to remove any falling hazard immediately. c. Wear covered toes shoes.	2	2	4	NA
30	Working in Office	Others:Cyberattack	Others:Data breaches	Others:Loss of personal/security data	a. Regular update of anti-virus software b. Restriction of installation of non-approved software c. Regular change of login password (E.g. Email password and etc.)	3	1	3	NA
		Others:Terrorist attack the workplace with guns	Others:Strike against	Others:Death / serious injury	a. Regular training on Run, Hide, Tell method. b. Dedicated "lockdown" alarm tone. c. Monitor activity with CCTV.	5	1	5	NA
		Psychosocial	Fatigue	Others: Bodily and Mental ill health	a. Increase supervision b. Ensure there is enough manpower c. Ensure regular breaks are taken d. Limit overtime hours e. Encourage healthy eating at work and provide access to healthy food options at work to minimize health risks	2	2	4	NA

		Others:Perpetrator/ attacker enter work premises with a knife and start slashing and stabbing people around	Others:Cut	Others:Death / serious injury	a. Monitor activity with CCTV b. Control access to workplace c. Security checkpoint. d. Regular security patrolling	5	1	5	NA
		Others: Bomb threat	Others:Strike against	Others:Death / Serious injury	a. Regular training on handling bomb threat call. b. Notice of Guide line on answering the call paste at the phone area.	4	1	4	NA
		Psychosocial	Stress	Others: Bodily and Mental ill health	a. Increase supervision; encourage a open policy for discussion b. Provide stress management workshops for staff c. Encourage a healthy lifestyle with regular leisure and sports activities	3	2	6	NA
		Others:Suspicious Parcel/ vehicle containing chemical agent/ Improvised Explosive Device (IED)	Others:Strike against	Others:Death / serious injury	a. Monitor activity with CCTV b. Regular training (i.e. SG SECURE) c. Poster to alert staff (Run, Hide, Tell)	5	1	5	NA
31	Charging Lithium-ion battery / lithium-polymer	Others:Heat	Others:Overcharging or Faulty battery	Others:Risk of battery fire, explosion, toxic fume release, injury to personnel, or damage to robot and nearby equipment due to internal fault or overcharging of built-in lithium-ion battery during operation	a) Charge in a fire-safe, well-ventilated area away from flammable materials. b) Do not leave robot unattended during charging. c) Provide operator training on emergency shutdown. e) Ensure fire extinguisher is available nearby. f) User only approved Ni-MH charger. g) Inspect batteries regularly for damage or leakage. h) Keep away from heat sources and direct sunlight	3	1	3	NA
		Physical	Slip, trip and fall on different levels	Limbs injury	a) Use cable organizers, trunking or floor covers. b) Locate charging station away from high-traffic areas. c) Display warning signs when robot is charging.	2	1	2	NA

		Electrical	Others:Exposure to damage internal circuits or faulty chargers.	Others:Risk of electric shock during charging process.	a) Inspect power cords and adapters before every use. b) Operators to wear rubber-soled footwear and avoid contact with exposed terminals. c) Inspect regularly for swelling, damage or leakage. d) No unattended overnight charging.	3	1	3	NA
		Chemical	Others:Battery casing breach or thermal failure	Others:Risk of toxic fume inhalation or chemical burns to personnel from built-in battery leakage or swelling. Contamination of workspace or injury may occur.	a) Perform visual inspection of charging port before each use. b) Switch off charging process immediately if swelling, smoke, or heat is observed. c) Do not tamper with the battery casing. d) Provide fire extinguisher and emergency SOPs in lab.	3	1	3	NA
32	Use of Shared Office Workspace (Pandemic season)	Physical	Others:Close proximity to colleagues	Others:Transmission of respiratory infections	1) Maintain minimum 1m safe distancing 2) Implement flexible work arrangements (e.g., work from home) 3) Apply split-team operations where feasible 4) Encourage teleconferencing in place of physical meetings 5) Mandatory travel declaration and compliance with quarantine/stay-home notice rules 6) No social gatherings in offices or during breaks 7) Hand hygiene reminders through posters and notices 8) Staff to stay home when unwell and seek medical attention 9) Follow NTU's updated COVID-19 advisories	3	1	3	NA
33	Access into School Premises/Facilities (Pandemic season)	Biological	Contact with or infection by bacteria, virus, fungal spores or toxin	Others:Encounter infection from uncontrolled entry.	1) Safe Entry check-in implemented at designated entry points 2) QR code registration for staff and students 3) Hand sanitizers available at all entry stations 4) Mandatory temperature screening for all visitors	3	1	3	NA

					5) Visitor clearance stickers issued for entry approval				
34	Delivery of Lectures, Tutorials, and Laboratory Sessions (Pandemic season)	Biological	Others:Close physical contact in classrooms/labs	Others:Infection spread among students/staff	1) Fixed and alternate seating to maintain distancing. 2) Mandatory mask-wearing during lessons. 3) Attendance/photo-taking for contact tracing. 4) Shift to online teaching platforms where possible. 5) In tiered classrooms: mark alternate seats in each row. 6) In cluster seating: maintain 1?2m spacing. 7) Faculty and students to wear masks/face shields at all times.	3	1	3	NA
35	Utilization of Common Areas (Meeting Rooms, Lobby, Staff Lounge, Pantry during pandemic season)	Biological	Contact with or infection by bacteria, virus, fungal spores or toxin	Others:Close contact among individuals or contaminated surfaces.	1) Floor markers to guide 1m safe distancing in reception/lobbies. 2) Posters displayed in lounges and pantries to remind safe distancing. 3) Increased cleaning frequency of high-touch surfaces (door handles, lifts, faucets, tables, chairs, shared IT equipment). 4) Provision of hand soap and sanitizers for hygiene. 5) Reduce and re-arrange lounge seating to maintain minimum 1m spacing. 6) Restrict number of occupants in shared spaces.	3	1	3	NA