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| **SAFE WORK INSTRUCTION** | |
| **3D Printer Activities with The Edge** | |
| Activity Authorisation / Supervision | Use of The Edge’s 3D Printers is only permitted under supervision by expressly authorized staff members and or contractors. |
| Description of the Activity | The Edge delivers a range of entry-level 3D printing activities to participants. These include practical, hands-on instruction in:   * Using measuring tools, CAD applications to create designs for 3D printing. * Preparing CAD files for 3D printing. * Safe and efficient use of The Edge’s 3D printers. * Monitoring, finishing and refining 3D printing jobs. |
| Tools, Equipment, Materials and Consumables | 1. Digital Media Lab or Fabrication Lab computers (iMac, MacPro or MacBook/ PC laptops provided by The Edge) 2. Android tablets/ iOS iPad and mobile devices provided by The Edge 3. Private laptop, tablet or mobile device. The use of private laptops and mobile devises is subject to the *Bring Your Own Device guidelines*. 4. Projectors / display devices provided by The Edge. 5. 3D printers 6. Allen Keys 7. 3D Printer Filaments (ABS and PLA). 8. Adhesives used in the assembly of projects. |
| Interim Safety Assessment (ISA) | An Interim Safety Assessment (ISA) must be completed and approved by a Program Coordinator before commencement of an activity when:   1. The activity will not be facilitated by an SLQ staff member or inducted contractor. 2. The activity will not be conducted in and around The Edge or on SLQ premises *(see SWI for Activities to be Conducted Off-site or in a Public Space).* 3. The activity requires the use of tools, equipment, materials or processes not detailed in Section 2 or 3. |
| Hazards associated with equipment /machinery/technique /process | Most activities in this skill area occupy a low risk profile with the majority of activities taking place in controlled environment of The Edge’s Basement Fabrication Lab.  The general risks associated with these standard activities include:   1. Trip, slip falls 2. Electric shock 3. Ergonomic & screen based work 4. Personal safety and 5. Communicable disease 6. Exposure to environmental hazards   Workers and participants are also exposed to other risks as a greater range of specific tools, processes and materials that are employed in 3D printing activities. Risk of injury from the wider range of tools, processes and materials listed in Section 3 include:   1. Exposure to hazardous materials released by the use of the 3D printer. 2. Exposure to hazardous materials released in the finishing and assembly of projects 3. Cuts, abrasions and small crushing injuries from knives, pliers, cutters, screwdrivers and or Dremel used in the finishing and assembly of projects. |
| Before Starting | 1. Check workspace for general tidiness. 2. Ensure all required equipment and materials are in the workspace and ready for use in the session. 3. Where possible re-route cables trailing across walkways. Use cable trays or gaff were unavoidable. 4. Consumption of food and drink in activity spaces is to be avoided where possible. Clear any spills immediately. 5. Encourage ergonomic work practices and encourage regular breaks. 6. Encourage good manual handling practices and provide appropriate equipment (trolleys, truck & straps for securing loads) to assist with larger loads. 7. Address interpersonal difficulties according the *Patron Responsible Behavior Policy* and seek assistance from VSOs or SLQ staff member on duty. 8. *VSO Daily Procedures* and the *Fabrication Lab Daily Procedures* include regular wiping down of all tables, keyboards, mice and computer screens with antibacterial wipes. However if you have particular concerns do not hesitate to collect wipes from reception and rewipe these surfaces. 9. **Ensure all powered (240v+ corded) tools/ devices to be used in a workshop have a current tag test sticker.** 10. **Conduct preflight checks of 3D printer:**     1. **Conduct a visual inspection of the cleanliness of the machine***.*     2. **If Cleaning/maintenance is required ensure all present are wearing required PPE**     3. **Ensure Hot work Permit is in place**     4. **Ensure 3D printer bed is properly initialized /calibrated before commencing printing** |
| Personal protective equipment (PPE) to be used | 1. Appropriate clothing and foot-ware should be worn at all times during this activity. 2. Hearing and Eye protection will be required for the use of some tools and materials listed in Section 3. (Dremel ) 3. **Ensure gloves and bench hook is used when removing 3D print from perf-boards and glass build plates.** |
| Emergency procedures | 1. If the machine begins making unusual noises or malfunctions pause the job, notify the nearest SLQ staff member on duty and await instruction. 2. First aid kits are located at Reception, the Back of Lab 4, The Edge staff office, SLQ Reception and the Cultural Centre Security Office. 3. The Cultural Centre Security office phone number is 07 3840 7216. 4. All incidents, **including near misses**, are to be reported to VSO or staff member on duty. |
| Step by step procedures for task | 1. Only use tools for the job they have been designed for. (Eg using a screwdriver as a leaver, chisel or awl can cause injury.) 2. Cutting tools (scissors, knives, dremel etc) will be pointed away from the body when in use and pointed down when being transported around the space. 3. Where possible ensure work is secured positively to the workbench before applying any force in the use of any of the following tools - screwdrivers, pliers, knives, dremel. 4. Wash hands after soldering or handling electronic components. 5. Staff and Participants are not to introduce electrical/ electronic equipment or devices to an activity space that has not been deemed safe prior to the commencement of the activity. 6. **Members of the public (participants) may use the 3D printer after successfully completing a 3D printing induction and under the supervision SLQ staff and or contractors expressly authorized to supervise Participants.** 7. **The 3D Printer is to be monitored at all times whilst in operation. 3D printing jobs are to be paused while unmonitored.** 8. **Ensure gloves and bench hook is used when removing 3D print from perf-boards and glass build plates.** |
| Clean-up procedures | 1. PPE is to worn when cleaning debris from machine. 2. Participant benches will be cleaned down of any offcuts and all tools are to be returned to their place in the storeroom. 3. Debris is to be brushed out and the machine cleaned at the end of each session. |
| Waste disposal procedures | NA |
| Record keeping | NA |
| Prepared by: Date: | Mick Byrne, Program Officer, The Edge  30 October 2015 |
| Approved by, Date: |  |
| Due for review |  |
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