# Instructions for Use:

This checklist is designed to enable the user of 3D printers, in consultation with their PI/Lab manager/Supervisor, identify hazards associated with and prior to, their intended use of a 3D printer. When planning the use of a 3D printer, the recommended risk controls listed below should be considered and incorporated where relevant to reduce the level of risk. Other controls not already covered that are unique to the functions of 3D printers should also be considered and recorded.

Refer to Appendix 1 Risk Assessment Matrix for explanation on risk ratings. Retain copies of completed forms on a shared drive and make accessible for the purpose of auditing.

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## Checklist:

<table>
<thead>
<tr>
<th>Item</th>
<th>Hazard Description</th>
<th>How Exposed to Hazard</th>
<th>Risk Rating – before controls (High/Medium/Low)</th>
<th>Recommended Risk Control Measures – (when implemented these controls are designed to reduce risk to as low as reasonably achievable)</th>
<th>Select Controls to be Incorporated</th>
<th>By Whom</th>
</tr>
</thead>
</table>
| 1    | Fumes/Ultrafine Particles | Potential Health effects on respiratory system from long term exposure | L | - In built HEPA filters and enclosed system  
- Adequate ventilation or Local air exhaust system  
- Safety Data Sheet (SDS)  
- Add other controls unique to use of your 3D Printer. | | |
| 2    | Chemicals | Contact with caustic bath chemicals Contact with post processing chemicals | M | - Enclosed system  
- Training, SOP & SDS  
- PPE: Gloves & Chemical Spill Clean-up Kit  
- Add other controls unique to use of your 3D Printer. | | |
| 3    | Fire | Contact with post processing chemicals  
Fire in unit due to electrical component failure | L | - Repairs and modifications by competent person only  
- Regular Maintenance & Electrical Inspection Test & Tag  
- Add other controls unique to use of your 3D Printer. | | |
| 4    | Heat | Contact with hot extrusion head or finished model could cause burns | L | - Enclosed system  
- Training & SOP  
- Add other controls unique to use of your 3D Printer. | | |
| 5    | Electric Shock | Contact of persons with live parts.  
Contact of persons with parts which have become live under faulty conditions. | L | - Restricted Access to Students  
- Repairs and modifications by competent person only  
- Regular Maintenance & Electrical Inspection Test & Tag  
- Training & Standard Operating Procedure (SOP)  
- Add other controls unique to use of your 3D Printer. | | |
| 6    | Entrapment/Entanglement | Contact with Moving Parts | L | - Enclosed system around moving parts, guarding  
- Training prior to operation of printer  
- Add other controls unique to use of your 3D Printer. | | |

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**NOTE:** Implementation of risk controls should be reviewed regularly to ensure they remain effective in minimising injury/illness.
# Appendix 1

## Risk Assessment Matrix

- The risk matrix below is used to determine the level of risk for each hazard.

### Risk Assessment Matrix

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Critical (may cause severe injury or fatality - more than two weeks lost time)</th>
<th>Major (injury resulting in at least one day lost time)</th>
<th>Minor (medical treatment injury - back to work)</th>
<th>Negligible (first aid treatment - no lost time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Likely</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Likely</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Unlikely</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Very low</td>
</tr>
<tr>
<td>Very Unlikely</td>
<td>Medium</td>
<td>Low</td>
<td>Very low</td>
<td>Very low</td>
</tr>
</tbody>
</table>

### Risk Priority Table

<table>
<thead>
<tr>
<th>Risk priority</th>
<th>Definitions of priority</th>
<th>Time frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Situation critical, stop work immediately or consider cessation of work process. Must be fixed today, consider short term and/or long term actions.</td>
<td>Now</td>
</tr>
<tr>
<td>Medium</td>
<td>Is very important, must be fixed urgently, consider short term and/or long term actions.</td>
<td>1 – 3 weeks</td>
</tr>
<tr>
<td>Low</td>
<td>Is still important but can be dealt with through scheduled maintenance or similar type programming. However, if solution is quick and easy then fix it today.</td>
<td>1 - 3 Months</td>
</tr>
<tr>
<td>Very low</td>
<td>Review and/or manage by routine processes</td>
<td>N/A</td>
</tr>
</tbody>
</table>