







SCOPE	
This document defines the Safe Work Procedure for Ultimaker S-Line 3D Printers	
Application	
Single and Dual Extrusion 3D Printing using PLA, PVA, PETG and other approved materials.	
SAFETY HAZARDS AND RISK CONTROLS	
Hazard	Control Strategy
<b>Electrical Hazards</b>	Inspect all leads for damage before plugging machine into electrical socket. If damage is evident do not attempt to use the machine and report the condition to technical staff Check current tagging and testing of machine before operating.
<b>Mechanical Hazards</b> Pinching, crushing, and entanglement hazards. 3D printers contain moving parts. Build plate, axles and drive belts may be points of entrapment.	Do not reach into top area of the printer during operation. Do not lean over the printer during operation. Keep hands clear of internal build area during operation.
<b>Risk of Burns</b> Hot surface hazard. The print heads of Ultimaker 3D printers can reach temperatures above 200 °C, while the heated bed can reach temperatures above 100 °C.	Do not touch print head or build plate with bare hands when they may be hot. If unknown, treat print head and build plate as if they are hot. Allow machine to cool down completely before reaching inside, removing prints, or performing maintenance or modifications, unless explicitly stated otherwise for certain maintenance operations. Wait until the display indicates that the build plate has cooled to a safe temperature. When performing maintenance, always use tweezers, pliers, and thermal gloves where appropriate.
<b>Emission Hazard</b> 3D printing processes can release ultrafine particles (UFPs), volatile organic compounds (VOCs) and other chemical substances. Above threshold limit values (TLVs) emissions can pose risks to health. Concentration depends on filament, adhesive, print conditions, and air exchange rate.	Use PLA material only if not fully enclosed. Use air manager and appropriate machine settings for other approved materials. Only use approved materials. Do not use ABS or other materials containing styrene. Ensure adequate ventilation. Do not use in classrooms or areas without exhaust ventilation. Ensure machine settings are appropriate for material choice; do not overheat material.
<b>Static Magnetic Field Hazard</b> 3D printers contain magnets.	Maintain at least 4cm of distance between any implanted electronic medical devices or implants containing ferromagnetic material and the 3D printer.
Personal Protective Equipment (PPE)	
Appropriate personnel protective equipment must be provided and used	
 <b>Safety Glasses</b> Safety glasses, goggles or face visor must be worn at all times.	 <b>Rings and Jewellery</b> Rings and jewellery must not be worn.
 <b>Protective Clothing</b> Close fitting clothing must be worn	 <b>Hair</b> Long and loose hair must be contained.
 <b>Footwear</b> Enclosed footwear must be worn at all times.	 <b>Protective gloves</b> Thermal gloves may be required while cleaning or replacing the nozzle. Cut resistant gloves must be worn when removing prints from build plate with a razor, and may be needed for post-processing.
ROLES AND RESPONSIBILITIES	
Title	Role
Technician	Technical staff must ensure that operation of the 3D Printer is undertaken by suitably trained individuals.
Students and non-technical staff	Must be inducted before use. Must work directly with a technician to use this equipment.

## PROCEDURE

### Pre-operational Safety Check

Ensure no slip/trip hazards are present in workspaces and walkways.  
Locate and ensure you are familiar with the operation of the ON/OFF switch.  
Check that the print bed is clean, dry, and free of any detergent or grease.

### Operational Safety Check

Keep clear of moving machine parts.  
Observe print in the first 30 minutes of operation to ensure good adhesion of print.  
Check print intermittently to ensure no warping or other failure issues.  
Abort print if failure occurs.

### Startup and Operating Instructions

Load material and ensure that the printer's settings match the material loaded.  
Ensure that Ultimaker Cura is configured for the correct printer and correct material.  
Slice print at appropriate resolution, using support and adhesion where necessary.  
Preview sliced print to confirm that settings are appropriate.  
Apply a thin, even layer of glue to build plate.  
Print via Ultimaker Cura or Digital Factory.  
Observe print for first 30 minutes to ensure automatic levelling is appropriate and good adhesion, and check intermittently.

### Housekeeping

Wait for machine to cool down fully. Check display and nozzle light colour to confirm. If cooled, nozzle light will be blue.  
Remove build plate from machine.  
Remove work from build plate, using a razor scraper and cut resistant gloves if necessary.  
Wash the plate using detergent and lukewarm water and dry fully before returning to printer.  
Confirm print removal on display.  
Leave the machine and work area in a safe, clean and tidy state.