








JOB HAZARD ANALYSIS

{Manufacturing Fire Fighter Robot Parts}

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Location of Task:	Central Washington University
Required Equipment / Training for Task:	Milling machine operations, Operation of the drill press, Operation of belt sander, 3D printing operations and First aid.
Reference Materials as appropriate:	<u>SDS for the spray paint</u> https://www.krylon.com/document/SDS/en/US/724504016014

Personal Protective Equipment (PPE) Required						
(Check the box for required PPE and list any additional/specific PPE to be used in "Controls" section)						
						
Gloves	Dust Mask	Eye Protection	Welding Mask	Appropriate Footwear	Hearing Protection	Protective Clothing
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Use of any respiratory protective device beyond a filtering facepiece respirator (dust mask) is voluntary by the user.						

TASK	TASK DISCRIPTION	HAZARDS	CONTROLS
CNC MILLING	Set up of 3D mill	Injury to hands from milling blades.	Never disconnect safety shields from milling blades.
		Hearing damage from noise of machine operation.	Wear hearing protection, such as ear plugs, if operating machine for periods extending more than 10 minutes.
	During milling	Possible eye injury from wire stitches thrown out by milling blade.	Wear safety glasses during operation.
		Crushing finger hazard from book clamp.	Do not hold book at spine when activating book clamp. Hold book at the face.

PRESS DRILLING	Clean the table.	Eye injury from metal debris.	Wear eye protection. Do not use compressed air.
	Load the vise.	Foot injury if the vise falls	Secure the vise on the table with T-pins.
		Finger pinching while sliding the vise	Don't let your fingers get under the vise unless you are lifting it from the table.
	Lock the table in place.	Back strain	Don't lean over the table to twist the lock handle.
	Load the bit.	Hand injury from the bit	Wear gloves. Don't hold on the end of the bit.
	Feed the drill with the feed.	Injury caused by breaking the bit	Feed with the appropriate pressure. Use the appropriate bit for the type of metal. Wear eye protection.
		Eye or skin damage from cutting oil	Use the lowest RPM. Wear eye protection. Wear a long sleeved shirt.
		Hand injury from the exposed pulley near the feed handle	Make sure a pulley guard is in place. Don't push the feed handle toward the pulley.
	Unload the vise.	Foot injury if the vise falls	Leave the vise secure on the table with T-pins until it is unloaded.
BELT SANDING	Check condition of belt.	Abrasion of fingers and hands	Avoid contact with belt edge or surface.
	Start sander.	Flying sawdust	Wear safety glasses or face shield.
	Align materials flat on table.	Pinching fingers or hand	Keep fingers and hands away from pinch points.
	Contact material with belt sander.	Cutting fingers or hand	Avoid contact with belt edge or surface.
		Flying sawdust	Wear safety glasses or face shield.

3D PRINTING	During printing	Injury due to touching of nozzle tip temperature	Attend the UP! 3D Printer tutorial qualification training. Wear leather gloves and stay away from the nozzle head as the printer prints.
	Removal of printed part	Injury due to poor removal of part from platform bed Cut or eye damage due to sharp/rough edges and small plastic pieces while removing support material on part. Injury due to platform bed temperature	Wear leather gloves. Use proper tooling for removal of part following the tutorial training. Wear leather gloves, safety glasses, and avoid handling rough edges. Wear leather gloves.
SPRAY PAINTING	Spray paint parts	Toxic fumes	Wear safety glasses and a dust mask.