



UNC CHARLOTTE

Department of Engineering Technology

# LABORATORY SAFETY ANALYSIS

## OPERATING A METAL LATHE



Location: Smith 135

Required Training: Metal lathes are designed and intended for use by properly trained and experienced operators. If you are not familiar with the proper and safe operation of a metal lathe, do not use until proper training and knowledge have been obtained.

Required Personal

Protective Equipment (PPE): Safety glasses closed toed shoes.

Reference Materials: Manufacturer’s safety rules and operating instructions

PHOTOS	TASK	HAZARDS	CONTROLS
	Remove all jewelry. Wrap long hair in net. Ensure clothing is sturdy and snug. Loose clothing, gloves, neckties, rings, bracelets, or other jewelry may get caught in moving parts.	Caught in lathe, struck by, lacerations, etc.	<ul style="list-style-type: none"> <li>Do not wear any jewelry that may get caught in the lathe.</li> <li>Do not wear gloves when operating a lathe.</li> <li>Loose clothing may get caught in moving parts.</li> </ul>
	Wear clear safety glasses with side shields and if necessary use a dust mask.	Flying debris and dust particles	<ul style="list-style-type: none"> <li>Students are required to provide their own safety glasses.</li> <li>See laboratory instructor or laboratory manager if you do not have safety glasses before proceeding to use equipment.</li> </ul>
	Inspect safety glasses for cracks, scratches or other defects. Ensure the ANSI standard Z87.1 is stamped into the side of the glasses.	Flying debris and dust particles	<ul style="list-style-type: none"> <li>If defects are found report this to your laboratory instructor before using.</li> </ul>
	Put on all necessary personal protective equipment.	Flying debris and dust particles	<ul style="list-style-type: none"> <li>Always wear safety glasses or face shield, use dust mask as required.</li> </ul>
	Inspect work area, walk around the lathe looking for debris and ensure there is adequate lighting.	Slips, trips & falls	<ul style="list-style-type: none"> <li>Remove any debris that could possibly cause an injury. Keep work area around lathe free from scraps, oil or grease.</li> </ul>

	Inspecting lathe, ensure that the machine is secured to the floor.	Tip over, sliding, walking	<ul style="list-style-type: none"> <li>Report any defect to your laboratory instructor or laboratory manager.</li> <li>Ensure corrective action has been taken prior to operating the lathe.</li> </ul>
	Securely clamp down work	Struck by, cut, injury	<ul style="list-style-type: none"> <li>Before starting the lathe, ensure the chuck; tail stock and tool rests are securely clamped; and there is proper clearance for the rotating stock.</li> <li>Get help when handling large sections of metal and heavy chucks and attachments.</li> </ul>
	Inspect lathe	Struck by, laceration, injury	<ul style="list-style-type: none"> <li>Ensure that all guards are in place before attempting to operate the machine.</li> <li>Keep the machine clear of tools.</li> <li>Plan your work thoroughly before starting. Have all needed tools on hand.</li> <li>Always remove the key from the chuck. Make it a habit never to let go of the key until it is out of the chuck and clear of the work area.</li> <li>Ensure the cutting tool will not run into the chuck or lathe dog. If possible, feed away from the chuck or dogs.</li> </ul>
	Operating the lathe, press the start button "ON"	Struck by, laceration, injury	<ul style="list-style-type: none"> <li>Remember-chips are sharp! <b>DO NOT</b> try to remove them with your hands when they become "stringy" and build up on the tool post. Stop the machine and remove them with pliers.</li> <li>Before repositioning or removing work from the lathe, move the cutting tool clear of the work area. This will prevent accidental cuts from the cutter bit.</li> <li>Avoid talking to anyone while running a lathe. <b>DO NOT</b> permit anyone to operate the machine while you are running it. You are the only one who should turn the machine on or off, or make adjustments to the lathe.</li> <li>You should always be aware of the direction of travel and speed of the carriage before engaging the half-nuts or automatic feed.</li> <li>Tools must NOT be placed on the lathe. Use a tool board or place them on the lathe tray.</li> <li>Do NOT permit small diameter work to project too far from the chuck without</li> </ul>

			<p>support from the tailstock. Without support, the work will be tapered, or worse, spring up over the cutting tool and/or break.</p> <ul style="list-style-type: none"> <li>• Be careful NOT to run the cutting tool into the chuck. Check any readjustment of work or tool for ample clearance when the cutter has been moved left to the farthest point that will be machined.</li> <li>• When filing on the lathe, be sure the file has a securely fitting handle.</li> <li>• Stop the machine immediately if odd noise or excessive vibration occurs. Under no condition should the machine be operated until the trouble has been corrected.</li> <li>• Remove sharp edges and burrs from work before removing it from the machine.</li> <li>• Check work frequently when it is being machined between centers. The work expands as it heats up and could damage the tailstock center.</li> <li>• Stop the machine before making measurements and adjustments.</li> <li>• Operator must always be aware of the direction and speed of the carriage or cross feed prior to engaging the automatic feed.</li> <li>• Never attempt to run the chuck on or off the spindle head by engaging the power.</li> </ul>
	Turn off lathe by switching the button to "OFF" position		<ul style="list-style-type: none"> <li>• Always turn the power off and wait until the cutter bit stops.</li> <li>• Stop the machine before attempting to wipe down, a machine surface.</li> <li>• Use care when cleaning the lathe. Chips sometimes stick in recesses. Remove them with a brush or short stick. Never clean the machine tool with compressed air..</li> </ul>
	Clean work area and return all PPE to a clean storage area.	Injury	<ul style="list-style-type: none"> <li>• Ensure adequate housekeeping measures to prevent accidents.</li> </ul>

For more information about this LSA, contact the *Department of Engineering Technology* at UNC Charlotte (704) 687-2305  
 Please visit our website at: <http://www.et.uncc.edu/>

***The development of Laboratory Safety Analyses is a very effective means of helping reduce incidents, accidents, and injuries in the workplace. It is an excellent tool to use for training purposes and can also be used to investigate "near misses" and accidents.***