

Semester	Week Number	Length of Time	Unit Number	Unit Title	Essential Questions	Learning Targets	Standards	Assessment	Vocabulary	Instructional Activities, Resources, and Teaching Notes	Building On	Building Towards
2	11 12 13 14 15 16 17 18	8 Weeks	7	Alternative Manufacturing Project	How will the specified part be produced? What tooling and equipment will be needed to produce this part? What will be your order of operations so you can produce the part in the most accurate manner?	The student will safely operate equipment to produce a specified project with a target score of 70%.	<p>NIMS: Benchmark Specialist 1.01 Process: Formulate strategies to fabricate and finish parts.</p> <p>NIMS: Benchmark Specialist 2.04 Fabrication: Execute fabrication applications to produce parts.</p> <p>NIMS: Benchmark Specialist 3.02 Measurements: Select and use appropriate M&TE (Measuring and Test Equipment) to measure part feature in an accurate, repeatable, and reproducible manner.</p> <p>NIMS: Manual Milling Specialist 1.01 Process: Formulate strategies to mill parts and qualify workholding devices for machine setup.</p> <p>NIMS: Manual Milling Specialist 2.01 Workholding Device Alignment: Secure workholding devices to machines with various configurations.</p> <p>NIMS: Manual Milling Specialist 2.02 Cutting Tool Assembly and Setting: Assemble and set cutting tools.</p> <p>NIMS: Manual Milling Specialist 3.02 Process Execution: Execute milling applications to produce parts to specification.</p> <p>NIMS: Manual Milling Specialist 5.02 Measurements: Select and use appropriate M&TE (Measuring and Test Equipment) to measure part feature in an accurate, repeatable, and reproducible manner.</p> <p>NIMS: Manual Turning Specialist 1.01 Process: Formulate strategies to turn parts and qualify workholding devices for machine setup.</p> <p>NIMS: Manual Turning Specialist 2.01 Workholding Device Alignment: Secure workholding devices to machines with various configurations.</p> <p>NIMS: Manual Turning Specialist 2.02 Cutting Tool Assembly and Setting: Assemble and set cutting tools.</p> <p>NIMS: Manual Turning Specialist 3.02 Process Execution: Execute turning applications to produce parts to specification.</p> <p>NIMS: Manual Turning Specialist 5.02 Measurements: Select and use appropriate M&TE (Measuring and Test Equipment) to measure part feature in an accurate, repeatable, and reproducible manner.</p> <p>OSHA: 1910.133(a)(1): The employer shall ensure that each affected employee uses appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.</p>	Alternative Manufacturing Project Rubric	<p>CNC</p> <p>G & M Code</p> <p>CAD</p> <p>CAM</p> <p>Sheet Metal</p> <p>Pattern and stretch out</p> <p>Hem</p> <p>Stakes</p> <p>Bending brakes</p> <p>Slip roller</p> <p>Welding</p> <p>Gas welding</p> <p>Oxyacetylene welding</p> <p>Shielded metal arc welding</p> <p>SAW</p> <p>Arc welding and stick welding</p> <p>Gas tungsten arc welding</p> <p>GTAW</p> <p>Tungsten inert gas welding</p> <p>TIG</p> <p>Gas metal arc welding</p> <p>GMAW</p> <p>Metal inert gas welding MIG</p>	<p>Order 10-15% more material for student errors.</p> <p>Have extra tooling available for breaks, especially smaller mill bits and lathe inserts.</p> <p>Let students know that they must use the speed and feed information to set the machines up correctly.</p> <p>Prepare students in group rotations so they do not all crowd the machines at once.</p> <p>Be vigilant with safety especially around the lathe.</p>	All prior knowledge learned within the class up to this point.	A solid foundation of metalworking so the students can progress into the next metal working class.
2	18 20	2 Weeks		Shop Cleanup & Final Exam				Final Exam				