

Student Name \_\_\_\_\_ Instructor Name \_\_\_\_\_

High School or Vocational Center \_\_\_\_\_ Grade \_\_\_\_\_

**COMPETENCY CHECKLIST FOR ADVANCED TECHNICAL PLACEMENT  
Manufacturing Technologies**

**MT 102A  
MACHINE TECHNOLOGY  
3 Credit Hours**

To meet the standards for articulated credit, the student will demonstrate competency in the tasks listed below. Competency standards will be determined by the high school instructor.

Task	Satisfactory	Unsatisfactory
<b>GENERAL TASKS</b>		
Exhibit an understanding of safe operating procedures for each machine tool in the course		
Display a willingness to follow all safety procedures		
Use the proper terminology for each machine and tool used in the course		
Be able to calculate the correct speed for a given machine operation		
Be able to calculate the correct feed for a given machine operation		
Read and follow a process sheet		
<b>MEASURING</b>		
Measure using a decimal ruler to 1/50 <sup>th</sup> of an inch		
Measure outside dimensions using a three way dial caliper to .001 inches		
Measure inside dimensions using a three way dial caliper to .001 inches		
Measure a depth using three way calipers to .002 inches		
Read an outside micrometer to .0001 inches		
Measure using the Vernier height gauge to .001 inches		
Measure an angle using a bevel protractor to 1 degree		
Display the ability to use a squareness gauge to inspect for squareness		
Measure flatness, runout, and parallelism with an indicator		
Use the surface plate for inspection		
<b>PEDESTAL GRINDER</b>		
Dress a grinding wheel		

Task	Satisfactory	Unsatisfactory
Grind a single point cutting lathe tool by hand		
Regrind a drill point by hand		
<b>LATHE</b>		
Display a knowledge of the various types of cutting tools used on the lathe		
Understand the various materials commonly used to make lathe tooling		
Choose the proper tool holder for the work to be done		
Set the proper spindle speed		
Set the proper feed rate and utilize power feed		
Prepare all of the lathe tooling required for the following operations		
<ul style="list-style-type: none"> <li>• Perform taper turning with a taper attachment</li> </ul>		
<ul style="list-style-type: none"> <li>• Perform taper turning on the O.D. of a part using the compound</li> </ul>		
<ul style="list-style-type: none"> <li>• Perform taper turning with the tailstock offset method</li> </ul>		
<ul style="list-style-type: none"> <li>• Thread a part using a single point cutting tool</li> </ul>		
<ul style="list-style-type: none"> <li>• Pick up an existing thread with a single point threading tool</li> </ul>		
<ul style="list-style-type: none"> <li>• Turn a part between centers</li> </ul>		
<ul style="list-style-type: none"> <li>• Indicate a part in a 4-Jaw chuck</li> </ul>		
<ul style="list-style-type: none"> <li>• Cut a grooving/part off operation</li> </ul>		
<b>MILLING MACHINE</b>		
Set the proper feed rate and RPM speeds		
Indicate a vice parallel to the table movement within .001"		
Tram the head of the mill within .001"		
Perform a boring operation with a boring head and the Quill Power Feed		
Demonstrate Knowledge of Climb Vs. Conventional Milling		
Perform peripheral milling, side milling and face milling		
Perform a power tapping operation		
Achieve drilled, counterboard, and countersunk hole depths within .005"		
Utilize toe and strap clamp types for work holding		
<b>SURFACE GRINDER</b>		
Square a block within .001"		
Side grind a stepped feature on a part		
Accomplish an 8G surface finish		
Achieve a .0005" Tolerance		

Task	Satisfactory	Unsatisfactory
Use a turning fixture to grind a round O.D.		
<b>CNC</b>		
Demonstrate the basic operation of the CNC Machining Center		
Demonstrate the ability to use a CNC Control Panel		
Demonstrate the ability to enter and change the X,Y, and Z offsets		
Demonstrate zero point and identify offset adjustments		

Instructor's Signature \_\_\_\_\_ Date \_\_\_\_\_