

Pennsylvania College of Technology
One College Ave.
Williamsport, PA. 17701-5799

Name: _____ Student ID Number: _____

School: _____ Date: _____

COMPETENCY ASSESSMENT FOR
MACHINIST GENERAL (MG)
MACHINE TOOL TECHNOLOGY (MY)
AUTOMATED MANUFACTURING TECHNOLOGY (AF)
MANUFACTURING ENGINEERING TECHNOLOGY (BAF)

The following validated competencies represent some of those included in the first semester of the program. Please assess each applicable competency by circling the appropriate code letter, then sign, date, and return the form to the College's Admissions Office.

- H - Highly skilled, able to work independently
- M - Moderately skilled - requires minimum supervision
- L - Limited skills - requires full supervision
- N - Not covered in instruction or work experience

PART I COMPETENCY ASSESSMENT

1. Personal Shop Practices (MTT 113/114)

- H M L N a. Demonstrate safe work habits
- H M L N b. Maintains conduct of self and others
- H M L N c. Care of tools
- H M L N d. Accepts personal responsibilities

2. Precision Measurement - Gaging and Inspection (MTT 113/114)

- H M L N a. Take outside micrometer readings
- H M L N b. Determine flatness with dial test indicator
- H M L N c. Determine accuracy of precision measurement instruments
- H M L N d. Measure and perform layout with height gage
- H M L N e. Take inside micrometer readings
- H M L N f. Take depth micrometer readings
- H M L N g. Take vernier caliper readings

3. Perform Mathematical Calculations (MTT 113/114)

- H M L N a. Apply dimensions of part from blueprints or specifications to job
- H M L N b. Calculate machine speeds and feeds by formula
- H M L N c. Use handbooks and charts

4. Designing & Planning Machine Work (MTT 113/114)

- H M L N a. Make sketches of parts to be machined
- H M L N b. Perform layout for precision machine work using layout instruments
- H M L N c. Refer to technical orders, standards, and specifications for machine work

5. Performing Bench Work (MTT 113/114)

- H M L N a. Cut materials with hand hacksaw
- H M L N b. Cut threads with hand taps
- H M L N c. Cut threads manually with dies
- H M L N d. Disassemble and assemble parts
- H M L N e. Hand sharpen cutting tools with abrasive stones
- H M L N f. Ream holes with hand reamers
- H M L N g. Remove damaged screws and other non-hardened threaded hardware
- H M L N h. Perform bench filing
- H M L N i. Perform pedestal grinding
- H M L N j. Polish metal
- H M L N k. Deburring

6. Operating Drill Presses (MTT 113/114)

- H M L N a. Identify major parts of the drill press
- H M L N b. Identify parts and types of drill bits and sizes
- H M L N c. Perform maintenance on drill press
- H M L N d. Prick punch and center punch hole locations
- H M L N e. Mount and secure work in holding device
- H M L N f. Sharpen drill free hand against grinding wheel and check for sharpness
- H M L N g. Select tool or cutter for drill press operations
- H M L N h. Secure tool or cutter in drill press spindle
- H M L N i. Select sleeve to suit drill
- H M L N j. Set drill press for proper speed and feed for operation performed
- H M L N k. Drill hole to size
- H M L N l. Counterbore to depth specified in blueprint
- H M L N m. Countersink hole to drawing requirements
- H M L N n. Ream hole to size
- H M L N o. Spot-face workpiece
- H M L N p. Hand tap hole to blueprint specifications using center in spindle
- H M L N q. Use automatic feed on drill press

7. Operating Power Saws (MTT 113/114)

- H M L N a. Identify the major parts of vertical band saw
- H M L N b. Perform maintenance on power saw
- H M L N c. Determine type of material to be sawed
- H M L N d. Select and set speed for sawing operation
- H M L N e. Select appropriate blades
- H M L N f. Cut and weld band saw blades to insert for contour sawing
- H M L N g. Lay out, part and saw to scribed lines with metal band saw
- H M L N h. Measure material and cut off materials with power hack saw
- H M L N i. Remove and replace saw blades

8. Operating Milling Machines - Vertical & Horizontal (MTT 113/114)

- H M L N a. Identify major parts of a vertical milling machine
- H M L N b. Identify major parts of a horizontal milling machine
- H M L N c. Perform maintenance on milling machine
- H M L N d. Align milling machine fixtures and attachments

8. Operating Milling Machines - Vertical & Horizontal (MTT 113/114) continued

- H M L N e. Bore holes with milling machine
- H M L N f. Cut external keyseat
- H M L N g. Drill holes with milling machine
- H M L N h. Inspect completed mill work
- H M L N i. Mill angles
- H M L N j. Perform end milling
- H M L N k. Perform fly cutting operation
- H M L N l. Perform indexing operation
- H M L N m. Perform reaming operation
- H M L N n. Perform cutting-off operation using slitting saw
- H M L N o. Select and set speeds and feeds for milling work
- H M L N p. Square workpiece
- H M L N q. Align (tram) head on ram type mill
- H M L N r. Use digital readout (rectangular coordinates)
- H M L N s. Locate edges
- H M L N t. Equally spaced holes (rotary table, polar coordinates)

9. Operating Lathes (MTT 116/117)

- H M L N a. Identify major part of a lathe
- H M L N b. Perform maintenance on a lathe
- H M L N c. Identify lathe tool bits
- H M L N d. Align lathe centers using the approximate method
- H M L N e. Align lathe centers using workpiece
- H M L N f. Align lathe centers using test bar and indicator
- H M L N g. Face and center drill a workpiece
- H M L N h. Drill holes
- H M L N i. Ream holes
- H M L N j. Bore holes
- H M L N k. Counterbore holes
- H M L N l. Countersink holes
- H M L N m. Secure tool holder, fixtures, or attachments
- H M L N n. Select and set speeds and feeds for rough and finish tuning
- H M L N o. Cut an internal taper using taper attachment
- H M L N p. Cut an external taper using taper attachment
- H M L N q. Cut an internal taper using compound rest
- H M L N r. Cut an external tapered surface using compound rest
- H M L N s. Cut internal threads
- H M L N t. Cut external threads
- H M L N u. Die cut threads with lathe
- H M L N v. Perform form turning operations
- H M L N w. Perform lathe filing
- H M L N x. Knurl parts
- H M L N y. Tap threads
- H M L N z. Turning between centers
- H M L N aa. Square shouldering
- H M L N bb. Grooving
- H M L N cc. Rechase threads on lathe

PART II HIGH SCHOOL PROGRAM INFORMATION

Name of program: _____

Length of program: _____ (years)

Total instructional hours: _____ This student completed _____ hours

PART III RELATED WORK EXPERIENCE (if applicable)

1. The student has participated in a planned and approved program of:
(Community Exploration, Cooperative Education, Work Experience)

2. The student was evaluated by the employer as being:
(Above Average, Average, Below Average)

Employer: _____

(Name of Company)

(Job Supervisor)

(Title)

PART IV COMMENTS AND/OR CLARIFICATIONS

(include any pertinent information or qualifications regarding skills, attitudes, etc.)

PART V CERTIFICATION AND RECOMMENDATION

I have reviewed the above competencies and believe, to the best of my knowledge, my assessment is fair and accurate. I recommend _____, recommend with qualifications _____, do not recommend _____ this student for advanced placement.

(Name)

(Title)