

UNIVERSITY OF ARKANSAS PULASKI TECH

Assessment Report: Program Level

The University of Arkansas – Pulaski Technical College calls for each program (AS, AA, AAS, CP, and TC) to have an assessment plan for each academic year that includes the following:

- Program learning outcomes
- Procedures for assessing the achievement of student learning
- Procedures for analyzing and interpreting assessment results for the continuous improvement of the program.



A primary goal for each instructional department's assessment is to include at least one direct measure of student learning, which is accomplished usually through the use of locally developed tests, student portfolios, capstone assessment measures, embedded assignments, or through licensure exams and standardized national tests. In addition to direct measures, most areas may also use indirect methods to assess student achievement. Graduation rates and graduation and employer surveys are frequently used as indirect indicators of student achievement.

This form presents template of questions that must, at minimum, be addressed by instructional departments when filing an assessment plan. While an electronic version of this form will be made available, instructional departments may include additional information not specifically addressed in this form as long as the template questions are addressed.

Other Assessment Considerations:

- The College expects programs/departments/divisions to make curriculum changes and 0 budget requests based in part upon assessment findings. Assessment of student learning should be a catalyst for quality instruction and improvement across the college community.
- All programs will be asked to submit an annual assessment report to the Assessment Committee by October 10 of each year. (If October 10 falls on a weekend, please submit reports on the following Monday.)
- For technical and occupational programs, please consider the role of your advisory committee 0 in your student learning objectives.

This form must be completed by October 10 of each academic year. Complete each part of this form. Please follow highlighted instructions.

Part A: Identification and Student Learning Outcomes

1. Name of program:	Machine Tool Techno	logy (TC)	
2. Name of individual compiling report:	Douglas A. Ford		
3. Date of submission:	<u>26 October 2022</u>		
4. Academic year:	<u>2021-2022</u>		
5. Is the assessment plan (Check or highlight or	ne)		
an initial plan for the a rev program	rision of an old plan	unaltered from previous year	
g e 2			



6. Provide a mission statement of the program to include a description of the jobs/careers for which students are being prepared. Also, list the learning outcomes for your program.

This program provides students the practical and general education experiences needed to enter the machine tool trades profession. A list of jobs for which students are prepared includes: manual machinist, CNC machinist, CNC programmer, Tool and die maker.

7. Complete the curriculum map below. Please mark an X in the map below to indicate which courses correspond with learning outcomes. If applicable, you can also use I, D, or M to indicate that a learning outcome is introduced, developed to foster more sophistication, or demonstrated at a level of mastery acceptable for graduation within the program. Additional courses may be marked with an R to indicate reinforcement of a program learning outcome.

List all supporting	Program Learning Outcomes				
courses					
	PLO #1	PLO #2	PLO #3	PLO #4	PLO #5
Manufacturing				Ι	
Processes					
Printreading and		Ι			
Sketching					
CNC 1	D	D	D		D
Machining 1	D	D	D		D
Machining 2	D	D	D		D
Machining 3	Μ	Μ	Μ		D
Quality Control	Ι				
CNC 2	Μ	Μ	Μ		D

8. How does your assessment report connect to institutional learning outcomes?

To help with mapping your assessment data to the school's overall institutional outcomes, please check the boxes for the institutional outcomes directly associated with the assessment data presented in this report. For details on each outcome, see Appendix A.

□ ILO #1 – Information Literacy

☑ ILO #2 – Technology Literacy

- ☑ ILO #3 Communication
- ☑ ILO #4 Critical Thinking

☑ ILO #5 – Quantitative Reasoning

- □ ILO #6 Cultural Awareness
- ☑ ILO #7 Professionalism





Part B: Assessment Methods and Data Sources

In this section of the assessment plan, learning outcomes for the program will be defined. Also, assessment methods and data sources for each outcome must be defined. Follow the instructions below to define and relate the program learning outcomes.

1. Complete the chart below or attach documentation of the assessment process that includes the data included below.

Program Learning Objectives tilize appropriate metrology tools and echniques.	Course AMS 2003	Data Source All students enrolled in AMS2003 (Quality
tilize appropriate metrology tools and chniques.	AMS 2003	All students enrolled in AMS2003 (Quality
chniques.	AWIS 2005	All students enforce in AM52005 (Quality
conniques.		Control Inspection) take 4 exams worth 100
		points apiece (400 points total). Assessment
		questions have been selected from these
		exams. 75% of students will score 75% or
		higher on the assessment questions.
terpret industrial drawings.	AMS 1204	All students enrolled in AMS 1204 (Printreading
1 8		and Sketching) take three chapter exams and a
		final exam which measure their ability to
		interpret industrial drawings. Assessment
		questions, which mirror those questions given on
		the NOCTI exam, have been selected from these $750(-5.4 \pm 1.4)$
		four exams. 75% of students must score 70% or
	MST 1404	All students enrolled in MST 1404 (Mashining
emonstrate the ability to correctly use	1/151 1404	All students enrolled in MS1 1404 (Machining III) must complete a performance based project
ommon machine tools and tooling.		in the form of creating a 1-2-3 block from
		hardened tool steel using a manual vertical mill
		and a manual surface grinder. 75% of students
		will score 75% or higher on the standardized
		evaluation rubric.
	MST 1304	All students enrolled in MST 1304 (Machining
		II) must complete two individual class projects in
		the form of creating a step shaft and a screw jack
		from steel using a manual lathe and industrial
		drawings provided by the instructor. /5% of
		students will score 7576 of higher on both
		projects.
	MST 1204	All students enrolled in MST 1204 (Machining I)
		must complete two individual class projects in
		the form of creating a two blocks of aluminum
		containing precisely located features using a
		manual vertical mill and industrial drawings
		provided by the instructor. 75% of students will
		score 75% or higher on each of these projects.
evelop a broad knowledge of various	AMS 1003	All students enrolled in AMS 1003
anufacturing techniques.		(Manufacturing Processes) 12 week, mid-term
		and a final exam which measure their understanding of processes used in the
		manufacture of goods Assessment questions
		have been selected from these exams 75% of
		students will score 75% or higher on the
		assessment questions.
		ussessment questions.



5. Demonstrate safety in a machine shop environment.	ST1204Students recognize safety hazST1304safety issues and apply safe wST1404procedures in accordance withMS 2103to safely operate and maintainMS2503commonly used in an automatenvironment. The safety lectuin the following classes: AMMST 1204, MST 1304, and M	ards and potential ork practices and n OSHA standards equipment ed manufacturing re and quiz is given S2103, AMS 2503, IST 1404. 100% of 575% cabindary
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2. Please check or highlight any of the statements below that apply to your program assessment. Also, for each program outcome, if applicable, attach any assessment instruments, grading rubrics, or exemplars of student performance used at the program level.

☑ Rubrics and/or standardized tests were pilot-tested and refined.

 \square Rubrics were shared with students.

□ Reviewers were calibrated with high inter-rater reliability or norming workshops.

3. Also discuss any additional data sources that may be used to gauge success (e.g. charts, graphs, surveys, rates).

N/A

4. Describe the process of analyzing the assessment data, including specifically discussion of results and collaboration among faculty in the program, for the last academic year. Also, check below any of the following statements that apply to your program assessment.

A number of "tracking questions" have been developed based on the NOCTI test. Student tests are examined to determine the percentage of correct answers.

 \Box Comparative data used when interpreting results and deciding on changes for improvements.

☑ National standards, collaboration with sister programs and/or research data were used to ensure the program was held to high standards.

5. Complete the chart below or attach documentation of the assessment results that includes the data included below. Results should include total number of students assessed, the distribution of scores, relevant and detailed interpretation, student strengths and weaknesses, and whether the target was met.

	Program Learning Objectives	Assessment Findings/Conclusion
1.	Utilize appropriate metrology tools and techniques.	The goal was achieved. 82% of students scored the tracking answers correctly. Only two questions did not meet the goal of 75% of the students answering correctly. That information



		will be reinforced in upcoming classes to see if a difference can be made
2.	Interpret industrial drawings.	The goal was achieved. 100% of the students correctly answered the tracking questions on the final exams. (Questions 6, 8, 20, and 22)
3.	Demonstrate the ability to correctly use common machine tools and tooling.	The goal was achieved in MST 1404 where 100% of students completing the final project achieved the goal of scoring 75% or higher. 100% of the students taking the final exam scored 75% or higher. The goal was not achieved in MST 1304 where 71% of students achieved a score of 75% or higher on the two assigned projects.
		The goal was achieved in MST 1204 where 83% of students achieved a score of 75% or higher on each of these projects.
4.	Develop a broad knowledge of various manufacturing techniques.	New instructional material was developed for this course because video tapes that had been used in the past were removed from the library's reference section without the instructor's knowledge. The fact that a new assessment strategy needed to be developed was forgotten in the panic and pressure of assembling new material. This program outcome will be addressed in next year's report.
5.	Demonstrate safety in a machine shop environment.	The goal was achieved in MST 1204, 1304, 1404, AMS 2103 and AMS 2503, where 100% of students scored 75% or higher on the safety test. Class averages were 90% or higher.

- 6. Describe your use of results, including planned improvements to the program and/or any follow-up studies that confirmed that changes have improved student learning. *Every year, the instructors examine the results of the tracking questions and attempt to identify any concepts that seem to elude our students. We discuss how we can improve our success in these areas.*
- 7. What specific changes were implemented this year based on last year's results? Increased emphasis was placed on certain printreading and quality control concepts that students routinely have difficulty understanding. Repetition and constant reinforcement in subsequent lessons helped to improve student success.
- 8. What specific budgetary resources are needed for your program based on your assessment results?





None.

9. Please write any additional information here that you think is pertinent to the assessment process for your program that assists stakeholders (i.e. administrators and standing committees) in understanding your report.

Our printreading and quality control classes are overwhelmingly made up of welding students versus machining students. Welders recognize early in the semester that they are learning to use measuring instruments that they will never see again after graduation so their motivation to learn is low compared to aspiring machinists. Likewise, the blueprints and symbols we study in printreading class have more relevance for machinists than welders who are more likely to be required to read drawings of a structural steel/architectural nature once they are in the field. This also impacts their desire to learn the material. As instructors, we do our best to explain that they don't know at this point where they will be working and that these concepts easily transfer to the welding field.



Appendix A – UA-PTC's Institutional Learning Outcomes

1. Analyze information from credible sources. (Information Literacy)

This may include the ability to:

- Locate relevant information
- Evaluate the quality and usefulness of the information
- Synthesize the information.
- Communicate the information in an ethical manner consistent with the standards of the field or program of study.

2. Appropriately apply a variety of technology tools within one's discipline. (Technology Literacy)

This may include the ability to:

- Acquire information,
- Solve real-world problems,
- Communicate, and/or
- Perform tasks and processes.

3. Communicate effectively with diverse audiences in multiple contexts. (Communication)

This may include the ability to:

- Develop, organize, and present orally well-supported and ideas formally and informally with consideration of community and context.
- Develop, organize, and present in written format well-supported ideas formally and informally with consideration of community and context.
- Clearly express ideas, information, and concepts in various modes and media, including the proper use of appropriate technology.
- Select and utilize means of communication appropriate for a variety of professional, civic, and social circumstances, environments, and communities.
- Consider diverse communities in multiple contexts.

4. Apply critical thinking skills to achieve a desired goal. (Critical Thinking)

This may include the ability to:

- Apply appropriate methods to solve problems or address issues.
- Use evidence to justify conclusions.

5. Use quantitative methods to solve problems. (Quantitative Reasoning)

This may include the ability to:

- Analyze and interpret quantitative information.
- Apply quantitative concepts and skills to solve real world problems.

6. Demonstrate awareness of cultural differences. (Cultural Awareness)

This may include the ability to:

- Explain how similar actions can be understood differently depending on cultural context.
- Evaluate the impact of culture on individuals and groups.

7. Demonstrate career readiness skills. (Professionalism)

This may include the ability to:

- Demonstrate personal accountability.
- Meet commitments.
- Demonstrate ethical behavior.



• Demonstrate teamwork.

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