UNIVERSITY OF ARKANSAS
PULASKI TECH

Assessment Report:
2018-2019 – 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 Objectives**
- **Procedures for assessing the achievement of student learning**
- **Procedures for analyzing and interpreting assessment results for the continuous improvment 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 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 10th of each year. (If October 10th falls on a weekend, please submit reports on the following Monday.)
- For technical and occupational programs, please consider the role of your advisory committee 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 Assessment Plan

1. Name of program: *Machine Tool Technology (TC)*

2. Name of individual compiling report: *Douglas A. Ford*

3. Date of submission: *16 Oct 2019*

4. Is the assessment plan (*Check one*)

☒ an initial plan for the program ☐ a revision of an old plan ☐ unaltered from previous year

5. Provide a brief description of the program and its purposes, to include a description of the jobs/careers for which students are being prepared.

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.

Part B: Student Learning Objectives, Assessment Methods, and Data Sources

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

1. Complete the chart below or attach documentation of the assessment process that includes the data included below. Also attach any assessment instruments and grading rubrics used at the program level if applicable.

Program Learning Objectives	Course	Assessment Method and/or Data Source
1. *Shop safety*	*AMS2103*	Students recognize safety hazards and potential safety issues and apply safe work practices and procedures in accordance with OSHA standards to safely operate and maintain equipment commonly used in an automated manufacturing environment. The safety lecture and quiz is given in the following classes: AMS2103, AMS 2503, MST 1204, MST 1304, and MST 1404.
2. **Printreading**	AMS 1204	All students enrolled in AMS 1204 (Printreading 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 four exams. 75% of students must score 70% or higher.
3. **Machine Setup and Operation**	AMS 2103	All students enrolled in AMS 2103 (CNC 1) take 4 exams and 4 G-code quizzes. The assessment questions, which closely mirror questions extracted from the NOCTI exam, come from the course exams and quizzes. 75% of students must score 75% or higher on the assessment questions.
	MST 1404	All students enrolled in MST 1404 (Machining III) must complete a performance based project 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. 75% of students will score 75% or 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.
4. **Measurement**	AMS 2003	All students enrolled in AMS 2003 (Quality Control/Inspection) take three chapter exams and a final exam which measure their ability to use a large assortment of standard machinist measuring tools. Assessment questions, which mirror those questions given on the NOCTI exam, have been selected from these four exams. 75% of students will score 75% or higher on the exams.
5. **Reverse Engineering**	AMS 1003	The analysis of a product for the purposes of identifying the manufacturing process used, identifying similar products that could be manufactured from the same process, identifying the type of materials used and to conduct reverse engineering processes. 75% of students will score 75% or higher.
6. **Design Methodology**	AMS 2303	All students enrolled in AMS 2303 (Tool Design) take chapter exams and a final exam which measure their understanding of industrial design methodology. Assessment questions have been selected from these exams. 75% of students will score 75% or higher on the assessment questions.
7. **Quality Management**	AMS 2403	All students enrolled in AMS 2403 (Quality Management) take three chapter exams and a final exam which measure their understanding of Quality Management. Assessment questions have been selected from these four exams. 75% of students will achieve a score of 75% or higher.

2. For each program objective, if applicable, discuss any additional data sources that may be used to gauge success (e.g. charts, graphs, surveys, rates).
   We listen closely to comments from our Advisory Committee on student performance and technology advancements in the trade.

3. Describe the process of analyzing the assessment data for the last academic year.
   A number of "tracking questions" have been developed based on the NOCTI test. Student exams are examined to determine the percentage of correct answers.

4. Complete the chart below or attach documentation of the assessment findings that includes the data included below.

Program Learning Objectives	Assessment Findings/Conclusion
1. *Shop safety*	The goal was achieved in MST 1204 where 92% of students achieved a score of 75% or higher on the safety quiz. Class average was 91%. The goal was achieved in MST 1304 where 100% of the students scored 75% or higher on the safety quiz. Class average was 93%. The goal was achieved in MST 1404 where 100% of students scored 75% or higher on the safety quiz. Class average was 94%.

2. **Printreading**	The goal was achieved. 82% of the students correctly answered the tracking questions on the mid-term and final exams. (Questions 5, 7, and 14, on the mid-term were used.) 91% of students correctly answered the assessment tracking questions on the mid-term and final exams (questions 20 on the mid-term and 28K & 16M on the final exams were used.) 100% of the students correctly answered the assessment tracking questions on the mid-term and final exams. (Questions 14i and 30Q on the final exam were used.)
3. **Machine Setup and Operation**	The goal was achieved in AMS 2103 where 80% of students scored 70% or higher on the final exam, the mid-term exam and all of the four G-code quizzes. The goal was achieved in MST 1404 where 86% 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 achieved in MST 1304 where the average score on both projects combined was 78.5%. The goal was not achieved in MST 1204 where 74% of students achieved a score of 75% or higher on each of these projects.
4. **Measurement**	The goal was achieved in AMS2003 where 32 students were enrolled in Quality Control classes. 24 (75%) of those students achieved a final grade of 75% or higher.
5. **Solidmodeling and CAM software**	*Due to low enrollment, this course was not taught during school year 2019-2020.*
6. **Reverse Engineering**	*The curriculum for this course is under revision and has not yet been assessed.*
7. **Design Methodology**	*Due to low enrollment, this course was not taught during school year 2019-2020.*
8. **Quality Management**	*Due to low enrollment, this course was not taught during school year 2019-2020.*

5. What is the action plan for assessment for the next academic year? Explain.
   The assessment plan for the next academic year is the same.

6. What changes were implemented this year based on last year's findings?
   Student projects in MST 1204 are being more closely monitored as the semester progresses. Students with a tenuous grasp of the math and logic required to locate a feature properly using an edge finder and the vertical mill dials are given extra instruction.

7. 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.
   The program was short 50% of its fulltime instructors for over one year.