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 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 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: *Heating, Ventilation, and Air Conditioning.*

2. Name of individual compiling report: *Robert Dixon*

3. Date of submission: *December 20, 2022*

4. Academic year: *2021-2022*

5. Is the assessment plan (*Check or highlight one*)

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

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.
The Heating, Ventilation, an Air Conditioning Department of UA-Pulaski Technical College provides access to high quality training that promotes professionalism and prepares the student to take their place in the HVAC Industry.

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 courses	Program Learning Outcomes						
	PLO #1	**PLO #2**	**PLO #3**	**PLO #4**	**PLO #5**	**PLO #6**	**PLO #7**
HVAC 1104	**x**			**X**	**X**	**X**	**X**
HVAC 1204	**R**		**X**	**R**	**R**	**R**	**R**
HVAC 2301	**R**	**X**	**R**	**X**	**R**	**R**	**R**
HVAC 2304	**R**	**X**	**R**	**X**	**R**	**R**	**R**
HVAC 2311	**R**	**X**	**R**	**X**	**R**	**R**	**R**
HVAC 2314	**R**	**X**	**R**	**X**	**R**	**R**	**R**
HVAC 2324	**R**	**X**	**R**	**X**	**R**	**R**	**R**
HVAC 2404	**R**	**X**	**R**	**X**	**R**	**R**	**R**
HVAC 2414	**R**	**X**	**R**	**X**	**R**	**R**	**R**
HVAC 2424	**R**	**X**	**R**	**X**	**R**	**R**	**R**
HVAC 2503	**R**	**X**	**R**	**X**	**R**	**R**	**R**
HVAC 2513	**R**	**X**	**R**		**R**	**R**	**R**

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.

x ILO #1 – Information Literacy

x ILO #2 – Technology Literacy

x ILO #3 - Communication

x ILO #4 – Critical Thinking

x ILO #5 – Quantitative Reasoning

x ILO #6 – Cultural Awareness

x 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 Outcomes	Course	Assessment Method and/or Data Source
1. *Safe working Practices*	*HVAC 1104*	*written test*
2. *Apply principles and strategies*	*HVAC 1204*	*hands on and written test*
3. *Trouble shooting and service*	*HVAC 1304*	*Hands on and written tests*
4. *Mathematical skills*	*HVAC 1104*	*Written tests and graded homework.*
5. *Handle refrigerants*	*HVAC 1104*	*EPA 608 test*
6. *Effective Communication*	*HVAC 1104*	*Student participation in white board demonstration*
7. *Critical thinking*	*HVAC 2304*	*Diagnosing based on refrigerant pressures.in the lab.*
8. *N.A.*		
9. *N.A.*		
10. *N.A.*		

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.

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

   ☐ 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).
   Home work is assigned and graded. Overall passing rates

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.
   Type your response here.

☐ 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 Outcomes	Assessment Results/Conclusion
1. *Safe working Practices*	Initial assessment is by standardized written test. Each lab, the students are required to maintain safety standards, and are graded as part of their lab grade. HVAC 1204 Principles of HVAC/R II. 17 students assessed. Total of 9 A's, 4 B's, and 4 C's.
2. *Apply principles and strategies*	*Initial assessment is by verbal performance, in class, of several required student teaching demonstrations. Then a written test, and finally performance in required lab experiments. HVAC 12054 Principles of HVAC/R II 17 students assessed. Total of 9 A's, 4 B's, and 4 C's*
3. *Trouble shooting and service*	*After studying theory of operation of gas Furnaces, the students are assessed first with a written test then by their performance in a required lab where a gas furnace is disassembled. The parts of the furnace are labeled and described in writing by the student. The student is graded based on the accuracy of his information about the furnace parts. Then the furnace is re-assembled, by the student, and must operate correctly when the student is finished. HVAC 2314 Heating Systems. This course is only offered in the fall. A total of 7 students participated. There were 6 A's and 1 B earned for the fall of 2022 semester.*
4. *Mathematical skills*	*In HVAC 1104 Principles of HVAC/R I the students make use of their math skills to solve several types of problems. They demonstrate their mastery of addition, subtraction, multiplication and division with graded homework assignments, written tests, and student demonstrations at the whiteboard (required in this class). 27 students assessed. 13 A's, 7 B's, 2 C's, 1 D, and 2 F's*
5. *Handle refrigerants*	*In HVAC 1104 Principles of HVAC/R I, students must earn their EPA 608 Refrigeration Handling Certification. This is accomplished by completing all four parts of the E.P. A. required exam. Failure to successfully attain "Universal" certification will severely limit the student's ability to progress through the required studies and the student will not be able to become a technician out in the field. 20 students were certified "Universal". 3 have attained partial certification. 3 students did not pass any of the test.*
6. *Effective Communication*	*In HVAC 2304 Residential Systems The students work as a team to learn to install a residential system. This is accomplished as a lab project for the semester. The students also work on preexisting systems to troubleshoot problems as the instructor directs. Always as a team. This class is offered only in the fall.7 A's*
7. *Critical thinking*	*In HVAC 2304 Residential Systems the students are taught to diagnose faults in the refrigeration system using the required tools. By taking readings the student can tell what*

	the system is doing. This class is only offered in the fall. 7A's were given last fall semester .
8.	*Type your response here.*
9.	*Type your response here.*
10.	*Type your response here.*

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.
   Student retention has improved greatly after this fall semester. First semester students returning as a percentage is up. Interest is very high.
7. What specific changes were implemented this year based on last year's results?
   More intensive student study of basic electrical troubleshooting was emphasized by my advisory committee. My adjunct and myself immediately pivoted to improve our teaching in this critical area.
8. What specific budgetary resources are needed for your program based on your assessment results?
   I requested last cycle, $59,000 thousand dollars for equipment. This would have bought a new industrial HVAC trainer, to allow the department to better train students in commercial HVAC, I continue to think that this would have been effective, and very useful. Other expenditures for the department need to include additional equipment for commercial, residential, and unitary refrigeration. A suggested budget per year for these other needs would be about $50,000 dollars.
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.
   Type your response here

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.