

Wayne Community College
Program Review and Outcome Assessments, 2018-19

Institutional Goal 2: Ensure Program Excellence

Institutional Goal 3: Improve Student Success

Department Name: Air Conditioning, Heating, and Refrigeration Technology

Mission/Purpose: The purpose of the Air Conditioning, Heating, and Refrigeration Technology program is to provide students with the basic knowledge to develop skills necessary to work with residential and light commercial HVAC systems.

Degrees, Diplomas, and Certificates Offered: List all degrees, diplomas, and certificates offered.

Air Conditioning, Heating and Refrigeration Diploma (D35100)
 Comfort Cooling Certificate (C35100CC)
 Heating Technology Certificate (C35100HT)
 Heat Pump Certificate (C35100HP)

Describe how the program's mission aligns with the College's vision, mission, core values, and strategic goals.

The Air Conditioning, Heating, and Refrigeration program meets the College's Mission of training students in our community. Completers should qualify for employment in a variety of positions including HVAC and Refrigeration service and installation in residential, commercial, and industrial companies and other HVACR organizations. The College's reputation for excellence for quality programs provides students with increased marketability.

Activities to ensure curriculum currency (2015-16; 2016-17; 2017-18)

List program curriculum changes, revisions, deletions in table.

Course Title	Date – Updated / Revised / Deleted
No curriculum changes, revisions, deletions since 2015-16 Program Review	N/A

Provide an overview of the significance of the program changes and improvements that occurred over the past three years

There have been no significant program curriculum changes, revisions, deletions since 2015-16.

Advisory Committee: dates, summary of minutes, activities (2015-16; 2016-17; 2017-18)

Summary of Advisory Committee Activities

Year	Meeting Dates	Recommendations / Activities
2015-16	12-9-15 and 7-14-16	Initiation of Career and College Promise (CCP) at Eastern Wayne High School; CCP program overview
2016-17	12-8-16 and 3-15-17	Continue NC3 Certifications; update Wayne Works Facility at Dixie Trail
2017-18	11-1-17 and 5-1-18	Soft skills instruction; necessary job market entry level skills

Describe program's participation with Advisory Committee or external organizations that contribute to maintaining program relevance. *(File Advisory Committee Meeting Minutes for past three years in Program Review Attachment folder.)*

Advisory Meeting Minutes are filed for 2015-16, 2016-17, and 2017-18 in the Review and Attachments Folder. Meet with Advisory Committee members at their facility and introduce students to actual working companies. Introduce students to local HVAC supply vendors. We will conduct these on an annual basis.

Analysis of trends in the field or industry

Provide narrative for analysis of trends in the field. *(Are there jobs available for your students? Is there new technology/equipment that needs to be added to your program?)*

Students have multiple job opportunities within the HVACR Industry. Trends are more toward ductless mini-split HVAC systems rather than whole house multizone systems. Ductless mini-split refrigeration trainer needs to be added to the program. We will address with our Advisory Committee in the Spring 2019 meeting. In addition, we will submit a planning objective for this equipment in the 2019-20 plan and budget year.

Faculty Profile

List of Faculty and Status (2015-16; 2016-17; 2017-18)

Faculty / Name	Full-Time / Part-Time
David Gardner	Full-Time
Lynwood Julien	Part Lab Assistant

Have all the faculty credentials been verified? *(Verify required documents are in personnel files.)*

Faculty credentials have been verified per Janet Sumner 1-14-19 (WCC Human Resources).

Faculty Contact and Credit Hours

Faculty / Name	Full-Time Part-Time	Summer 2015		Fall 2015		Spring 2016	
		Contact	Credit	Contact	Credit	Contact	Credit
David Gardner	FT	11	5	21	15	20	14
Lynwood Julien	PT Lab Asst					12	

Faculty / Name	Full-Time Part-Time	Summer 2016		Fall 2016		Spring 2017	
		Contact	Credit	Contact	Credit	Contact	Credit
David Gardner	FT	11	5	21	15	20	14
Lynwood Julien	PT Lab Asst	14				12	

Faculty / Name	Full-Time Part-Time	Summer 2017		Fall 2017		Spring 2018	
		Contact	Credit	Contact	Credit	Contact	Credit
David Gardner	Full Time	11	5	21	15	20	14
Lynwood Julien	PT Lab Asst	14		12		12	

Faculty Demographics (2015-16; 2016-17; 2017-18)

	# Employees	Avg. Years of Service	% of Classes Taught By
Full-Time	1	9	100%
Part-Time	1	2	Lab Assist

Provide narrative for adequacy of faculty numbers. (*Do you have enough faculty to support your program?*)

Faculty is sufficient - Part Time Lab Assistant is needed during Lab Sessions due to safety issues.

Professional development activities of faculty (2015-16; 2016-17; 2017-18)

Verify departmental professional development (PD) tracking logs are completed and filed in Program Review Professional Development folder.

Verified professional development tracking logs were completed and correct on January 14, 2019.

Student Demographics

Gender (D35100) Unduplicated			
Academic Year	Female	Male	Total
2015-2016	0	24	24
2016-2017	0	18	18
2017-2018	0	24	24

Gender (C35100) Unduplicated			
Academic Year	Female	Male	Total
2015-2016	0	0	0
2016-2017	0	6	6
2017-2018	0	0	0

Ethnicity (D35100) Unduplicated							
Academic Year	American Indian	African American	Asian or Pacific Islander	Hispanic	Caucasian	Other / Unknown / Multiple	Total
2015-2016	0	5	1	2	16	0	24
2016-2017	0	3	0	1	14	0	18
2017-2018	1	4	0	2	16	1	24

Ethnicity (C35100) Unduplicated							
Academic Year	American Indian	African American	Asian or Pacific Islander	Hispanic	Caucasian	Other / Unknown / Multiple	Total
2015-2016	0	0	0	0	0	0	0
2016-2017	0	1	0	0	5	0	6
2017-2018	0	0	0	0	0	0	0

Age Groups (D35100) Unduplicated						
Academic Year	Under 18	18-24 years	25-34 years	35-44 years	45 and older	Total
2015-2016	0	12	6	5	1	24
2016-2017	0	13	2	1	2	18
2017-2018	0	19	3	1	1	24

Age Groups (C35100) Unduplicated						
Academic Year	Under 18	18-24 years	25-34 years	35-44 years	45 and older	Total
2015-2016	0	0	0	0	0	0
2016-2017	0	6	0	0	0	6
2017-2018	0	0	0	0	0	0

Provide narrative for analysis of student demographics. *(Are you satisfied with your program demographics? Do you have a diverse population of students?)*

Majority of students are white, male and between the ages of 18-24. Currently, the program lacks diversity. We will work to recruit a more diverse population of students.

Program Enrollment (Fall, Spring, Summer)

Program Enrollment (D35100) Unduplicated		
Year	Enrollment	3-Year Average
2015-16	24	33
2016-17	18	26
2017-18	24	22

Program Enrollment (C35100) Unduplicated		
Year	Enrollment	3-Year Average
2015-16	0	0
2016-17	6	2
2017-18	0	2

Provide narrative for analysis of program enrollment. *(Is enrollment increasing or decreasing? What possible reasons for increase/decrease? Describe how you plan to address program enrollment.)*

3-Year Average has dropped due to a more favorable job market. Plan to communicate with local employers to encourage formal education before hiring.

Program Outcomes

Retention

Baseline: 63% (Average of last three years – 2015-16; 2016-17; 2017-18, fall-to-summer program retention)

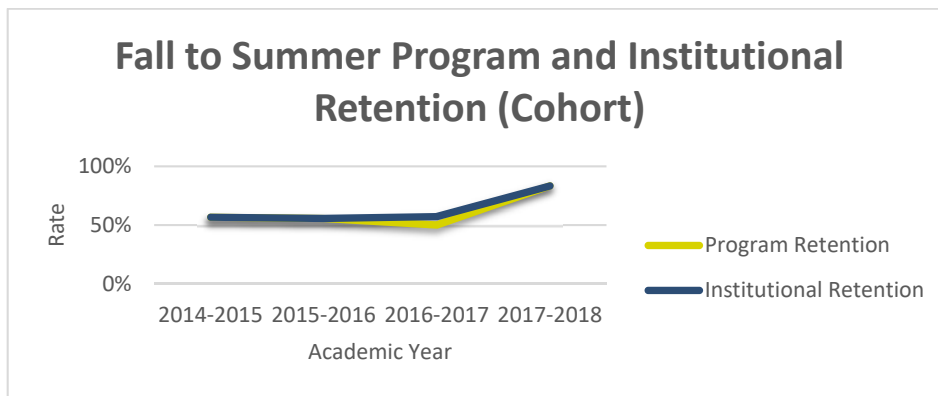
Standard: 65%

Target: 70%

Data/Results: *Because this is a three-semester program, retention will be based on Fall to Summer.*

Fall-to-Summer

Year	Fall Enrollment	Grads	Return	Non-Completers	Program Retention	New Program	Institutional Retention
2015-2016	18	0	10	8	56%	0	56%
2016-2017	14	0	7	6	50%	1	57%
2017-2018	18	1	14	3	83%	0	83%



Provide narrative for analysis of program retention. (Based on the data, provide a narrative of your analysis of fall to summer retention. Indicate factors that may have affected your retention. State any changes you plan to address for next year that may affect / increase your retention.)

The HVAC Diploma Program starts in Fall Semester and ends in the Summer. As a three-semester program, a fall to fall retention rate is not applicable. The Fall to Summer retention reflects a 3 year average of 63%. In a three-year period, one student changed his major; 17 students did not complete; one student graduated; and 31 students were retained. At this time, we are pleased with the retention rate of the program, but there is room for growth and increased retention.

Provide narrative for analysis of standard/target. (As a result of the data analysis, indicate changes to the standard or target. Did you meet your standard/target? If you met your standard/target, what percentage would you like to increase your standard/target? Please provide an overall analysis of the results of your standard/target. Provide percentage of increase/decrease.)

New Program Retention standards and targets were set based on the three-year baseline data from 2015-16, 2016-17, and 2017-18 fall to summer retention.

Completions

Baseline: 17 (Average of last three years – 2015-16; 2016-17; 2017-18)
Standard: 20
Target: 25

Data/Results:

Number of Graduates (Completions) <i>Unduplicated</i>				
	Degree	Diploma	Certificate	Total
2015-16		9	9	18
2016-17		8	4	12
2017-18		5	18	23

Provide narrative for analysis of completions. (Are you satisfied with your completion rates? How might you increase your completion rates?)

We would like to increase completion rates. One area of emphasis for improvement will be certifications. Student certifications will be prioritized. Dedicated classtime is allotted specifically to talk about various certifications. Eleven different certifications are currently available to students for NC3, EPA, and Comfort Heating and Cooling.

Provide narrative for analysis of standard/target. (As a result of the data analysis, indicate changes to the standard or target. Did you meet your standard/target? If you met your standard/target, what percentage would you like to increase your standard/target? Please provide an overall analysis of the results of your standard/target. Provide percentage of increase/decrease.)

New completion standard and target was set based on the three-year baseline data from 2015-16, 2016-17, and 2017-18.

Job Placement / Employment (to be provided by program)

Baseline: 61% (Average number of graduates and those seeking more education for the last three years – 2015-16; 2016-17; 2017-18)
Standard: 65%
Target: 70%

Data/Results:

Employment Demand						
Year	Graduates	# Employed (within 1 Yr)	# Seeking More Education (within 1 Yr)	% Employed & Seeking More Education	Unknown	Other/Comments
2015-16	18	8	5	72%	5	
2016-17	12	6	3	75%	3	
2017-18	23	5	3	35%	15	

Provide narrative for analysis of job placement rates. *(Are students finding jobs within the program of study?) (How can your program promote higher employment of students in the field?)*

Every student who has actively sought employment in HVAC has been successful in finding gainful employment.

Provide narrative for analysis of standard/target. *(As a result of the data analysis, indicate changes to the standard or target. Did you meet your standard/target? If you met your standard/target, what percentage would you like to increase your standard/target? Please provide an overall analysis of the results of your standard/target. Provide percentage of increase/decrease.)*

New employment standards and targets were set based on the three-year baseline data from 2015-16, 2016-17, and 2017-18.

Provide narrative for analysis of Labor Market Data. *(Review Labor Market Data provided and provide an assessment of the data.)*

Market Data indicates a 6% HVAC job growth with a median hourly earnings of \$18.38/hr

Licensure and Certification Passing Rates (if applicable) *Not applicable.*

Baseline: *Not applicable (Average of last three years; identify last three licensure years)*

Standard:

Target:

Data/Results: Not applicable

Licensure / Certification Exam

Year	# Tested	% Passing
2010-11		
2012-13		
2013-14		
2014-15		
2015-16		
2016-17		

Provide narrative for analysis of licensure / certification passing rates. *(Are you satisfied with your program licensure rates?)*

Not applicable.

Provide narrative for analysis of standard/target. *(As a result of the data analysis, indicate changes to the standard or target. Did you meet your standard/target? If you met your standard/target, what percentage would you like to increase your standard/target? Please provide an overall analysis of the results of your standard/target. Provide percentage of increase/decrease.)*

Not applicable.

Third-Party Credentials (if applicable)

Baseline: 14 (Average number of completers for the last three years – 2014-15; 2015-16; 2016-17)
Standard: 17
Target: 20

Data/Results:**Third-Party Credentials**

Year	Credentials for Program of Study	# Tested	# Completers
2014-15	EPA Certification (40 CFR Part 82, subpart F)	9	8
2015-16	EPA Certification (40 CFR Part 82, subpart F)	17	15
2016-17	EPA Certification (40 CFR Part 82, subpart F)	18	18

Provide narrative for analysis of third-party credentials. (Are there other industry-recognized credentials that needs to be addressed for the program of study?) (What are other means to promote program third-party credentials?)

Certifications are being taken Online with a positive impact on completions. EPA certification is an industry required certification.

Provide narrative for analysis of standard/target. (As a result of the data analysis, indicate changes to the standard or target. Did you meet your standard/target? If you met your standard/target, what percentage would you like to increase your standard/target? Please provide an overall analysis of the results of your standard/target. Provide percentage of increase/decrease.)

New third-party credential standards and targets were set based on the three-year baseline data from 2014-15, 2015-16, and 2016-17.

Course Success**Analysis of student success in courses (2015-16; 2016-17; 2017-18)**

Provide narrative for analysis of student success in courses. (Ex – Are more students successful in online courses versus traditional? Are students more successful in certain courses?)

Students are more successful in traditional courses where hands-on Labs are prioritized. In Fall 2018, a change was made to the EPA certification process. Students now have the ability to re-take the EPA test four times instead of just once, at a cost of \$25 versus \$40 per test. The testing is provided on campus online.

Analysis of student success in distance learning courses (2015-16; 2016-17; 2017-18)

Course Success Rates by Method of Instruction				
Semester	Department	Course Number	% Success	Method of Instruction
Fall 2015	AHR	110	87	Traditional
Fall 2015	AHR	111	88	Traditional
Fall 2015	AHR	113	89	Traditional
Fall 2015	AHR	160	87	Traditional
Fall 2015	BPR	135	88	Traditional

Fall 2016	AHR	110	79	Web
Fall 2016	AHR	111	82	Web
Fall 2016	AHR	113	80	Web
Fall 2016	AHR	160	67	Web
Fall 2016	BPR	135	80	Web
Spring 2016	AHR	112	95	Web
Spring 2016	AHR	114	92	Web
Spring 2016	AHR	130	93	Web
Spring 2016	AHR	211	88	Web
Summer	AHR	172	80	Web
Summer	AHR	245	82	Web
Summer	AHR	247	82	Web
Fall 2017	AHR	110	100	Traditional
Fall 2017	AHR	111	94	Traditional
Fall 2017	AHR	113	100	Traditional
Fall 2017	AHR	160	59	Traditional
Fall 2017	BPR	135	100	Traditional
Spring 2017	AHR	112	94	Traditional
Spring 2017	AHR	114	88	Traditional
Spring 2017	AHR	130	86	Traditional
Spring 2017	AHR	211	82	Traditional
Summer	AHR	172	100	Traditional
Summer	AHR	245	100	Traditional
Summer	AHR	247	100	Traditional
Spring 2018	AHR	112	94	Traditional
Spring 2018	AHR	114	100	Traditional
Spring 2018	AHR	130	100	Traditional
Spring 2018	AHR	211	94	Traditional
Spring 2018	AHR	172	73	Traditional
Spring 2018	AHR	245	100	Traditional
Spring 2018	AHR	247	100	Traditional

Provide narrative for analysis of student success in distance learning courses. (Are distance education course success rates equivalent to the success rates for other methods of instruction?)

Distance Learning courses are not a part of curriculum.

Analysis of Program Learning Outcomes (PLO) (2015-16; 2016-17; 2017-18)

- Document PLO cycle for the next four years (2018-19, 2019-20, 2020-21, and 2021-22) in the table below. **Complete**
- File program learning outcome reports for the past three years (2015-16, 2016-17, and 2017-18) in the Program Review Attachment folder. **Confirmed PLO Assessment Reports are in Review Form & Attachments folder in "U" Drive**
- Document changes to the program learning outcomes and/or assessment cycle. **No changes**

Assessment Cycle	Program Learning Outcomes
2018-19	HVAC PLO # 1 (Service) (collect in SU and assess in FA)
2019-20	HVAC PLO # 2 (Repair) (collect in SU and assess in FA)
2020-21	HVAC PLO # 3 (Install) (collect in SU and assess in FA)
2021-22	HVAC PLO # 1 (Service) (collect in SU and assess in FA)

Other Assessments**Analysis of graduate survey data (2015-16; 2016-17; 2017-18)**

Provide narrative for analysis of program-specific graduate survey data.

Students were generally well satisfied with the overall survey analysis. Student are generally satisfied with services (Foundation, student services, financial aid).

Analysis of employer survey data (2015-16; 2016-17; 2017-18)

Provide narrative for analysis of program-specific employer survey data. (What did employers indicate needs improvement within your program (equipment, facilities, program offerings/certificates?))

Advisory Committee indicated equipment, facilities will need to expand for added student population. A more efficient, later model HVAC package and split units has been submitted as a planning objective in the 2018-19 plan/budget year. The planning objective was not funded. However, we will resubmit the objective in the 2019-20 plan/budget year.

External Reviews

In addition to SACSCOC, is there an accrediting body specifically related to the program? If so, please name the professional organization, describe the program's current status, and most recent date of accreditation.

No other accrediting body related to program.

Resources**Program facilities - location and adequacy**

Provide narrative for program facilities adequacy and/or needs.

More Lab area needed to accommodate training equipment. HVAC facilities are located in Magnolia, 106. Approximately, 1000 square feet could be used to give students more access to training equipment. Our teaching / lab space was reduced by 1000 square feet to accommodate a server room in 2015.

Library resources

Provide narrative for program library resources. (Are library resources adequate for your program?)

Library resources are adequate.

Planning Objectives (2015-16; 2016-17; 2017-18)

- Verify previous year's prioritized planning objectives end-of-year status reports are filed in Program Review Planning Objective EOY (End of Year) Status Reports folder.
- Provide a summary of planning objectives submitted for the last three years, including the use of results, of the planning objectives in the table provided.

Summary of Planning Objectives

Planning Year	Objective(s) Submitted	Use of Results
2015-16	3 Electrical Trainers w/carts	Not approved
2016-17	3 Electrical Trainers w/carts	AHR 130 (HVAC Controls) Students were assessed in AHR110. The results of the assessment is located in the PLO end-of-year assessment folder.
2017-18	Pressure Distribution Trainer	AHR 211 (Residential Design) Equipment was received in Fall 2018. Use of results will be provided in the 2018-19.

Overall analysis of the strengths of the program

Provide narrative for analysis of the strengths of the program.

AHR (Air Conditioning, Heating, and Refrigeration) Program monitors industry trends and alters curriculum to support leading tendencies by maintaining current printed and online publications. Local employers seek technicians and/or recommendations for graduates of the HVAC program. Special Speakers are continually being sought for new technology explanations and applications. Lab area is utilized efficiently.

Overall analysis of the weaknesses of the program

Provide narrative for analysis of the weaknesses of the program.

Students leave the program with limited field experience for job placement. Employers have to provide specific training on proprietary equipment they market resulting in students being required to work on appurtenances to which they have never been exposed.

A threat to the program is that when the job market is steady, students are able to obtain employment before completing the program. This negatively impacts completion and retention.

Recommendations

- Complete 2018-2019 Program/Service Review/Outcome Assessment Recommendation Worksheet to address action items from program review and outcome analysis with target date; and methods to assess action items.
- File Review/Outcome and Assessment Recommendation Worksheet in Recommendation and Follow-Up folder.
- Recommendation follow-up reports to be addressed spring semester following review year (2019-20 and 2020-21).

Recommendations from Program Review and Outcome Assessments

Outcome (<i>Identify projected outcomes as a result of your program/service review.</i>)	Target Date (<i>Identify your projected target date for completion of action items.</i>)	Actions/strategies to achieve outcomes and how you will assess the action/strategy
<p>Retention – Fall to Summer <i>Increase fall to summer retention.</i></p> <p>Baseline = 63% Standard = 65% Target = 70%</p>	<p><i>2021-22 Academic Year (Fall, Spring, Summer)</i></p>	<p><i>Faculty will have conversations with local employers to stress the importance of students completing the program before being hired. Faculty will also stress the importance to students, as well. Use Fall to summer Program Retention Data for a more comprehensive analysis of Program Assessment</i></p>
<p>Completions - <i>Increase number of curriculum certificates and diplomas completed (Fall to Summer)</i></p> <p>Baseline = 17 students Standard = 20 students Target = 25 students</p>	<p><i>2021-22 Academic Year (Fall, Spring, Summer)</i></p>	<p><i>Will compare three-year Fall to Summer Program Completion Data</i></p>
<p>Job Placement – Increase number of students who obtain jobs in the field of study and/or continue education</p> <p>Baseline = 61% Standard = 65% Target = 70%</p>	<p><i>2021-22 Academic Year (Fall, Spring, Summer)</i></p>	<p><i>Coordinate student/employer communication/relationships. Track student completers who are employed after graduation to ensure job placement. Track students who continue his/her education. Compare to three-year data.</i></p>
<p>Licensure/Certification Passing Rates (if applicable) - Not applicable.</p>	<p>N/A</p>	<p>N/A</p>
<p>Third-Party Credentials – Increase number of online third-party credentials available to students.</p> <p>Baseline = 14# Standard = 17# Target = 20#</p>	<p><i>2021-22 Academic Year (Fall, Spring, Summer)</i></p>	<p><i>Track online third-party credentials available for students. Encourage students to obtain third-party credentials in order to make them job-ready for employment.</i></p>
<p>Additional Recommendation – Use Moodle as a supplemental instruction resource</p>	<p><i>Fall 2019</i></p>	<p><i>Monitor Participants in each module of Moodle</i></p>
<p>Additional Recommendation – Mini-split refrigeration trainers</p>	<p><i>2019-20 Planning Objective submission</i></p>	<p><i>Will submit planning objective in the 2019-20 for the refrigeration trainers.</i></p>

Approvals

- Using DocuSign (electronic signature), the Office of Institutional Effectiveness (IE) will review the Program/Service Review and Outcome Assessments when completed by the responsible program/service personnel. The Office of Institutional Effectiveness will forward the review documents to the appropriate administrator upon completion.
- Using DocuSign (electronic signature), appropriate Vice President/Associate Vice President is asked to review and approve the Service Review and Outcome Assessment and Recommendations as submitted.

IE Acceptance / Date: Dorothy Moore

Administrator Approval / Date: Patty Pfeiffer