



Cycle: 2018-2021

CERTIFICATE IN ESSENTIALS OF HEATING, VENTILATION, AND AIR CONDITIONING TECHNOLOGY

Program Mission Statement:

The Essentials of Heating, Ventilation, and Air Conditioning (Certificate) is a program that will provide students with the basic knowledge of installing and maintaining heating, air conditioning, and refrigeration equipment.

Division: Technical and General Education

AVP: Dan Averette

Department Chair: Keith McKenzie

Director: Matthew Lewis

SACSCOC Standard: 8.2A

Accrediting Agency: Yes No

Name:

Certification Exam(s): Yes No

Agency Name:

Credential:

Program Student Learning Outcome	Monitoring Year
Apply knowledge of installing air conditioning system	2019-2020
Apply knowledge of the air conditioning system to repair problems	2019-2020
Demonstrate how to read electrical diagrams and diagnose electrical circuits	2020-2021
Demonstrate how to read temperature/pressure charts and diagnose problems within the system	2020-2021

STUDENT LEARNING OUTCOMES FOR AAS.ACR -- 2019-2020

A. Program Student Learning Outcomes	B. What courses are PSLOs Assessed	C. Methods for Outcomes Assessment	D. Expected Level of Program Performance	E. Data Collection	F. Results	G. Plan For Improvement
What should the graduates of your program be able to do?	Where do you see evidence that the student can do these things?	How does your program evaluate student/graduate skills/abilities?	What is the expected level of student performance <u>for the program</u> ?	When will you collect the data needed to evaluate the performance of the program?	What are the results of the evaluation? NOTE: include student ratio with all results.	How will you use this information to improve the program
Apply knowledge of installing air conditioning system.	ACR 120 Basic Air Conditioning	Students will have to draw and design and basic air conditioning circuit and label the components.	70% of students will pass the Final Exam with a score of 70% or better.	Fall 2019	14 out of 20 students (70%) received a 70% or higher on the Final Exam for this assessment The lowest score was a 47% and the highest score was 94%. The cohort average was 75.65%.	The expected learning outcome was met and extra time will be devoted to ensuring students can master the installation of an air conditioning system.

STUDENT LEARNING OUTCOMES FOR AAS.ACR -- 2019-2020

A. Program Student Learning Outcomes	B. What courses are PSLOs Assessed	C. Methods for Outcomes Assessment	D. Expected Level of Program Performance	E. Data Collection	F. Results	G. Plan For Improvement
What should the graduates of your program be able to do?	Where do you see evidence that the student can do these things?	How does your program evaluate student/graduate skills/abilities?	What is the expected level of student performance <u>for the program</u> ?	When will you collect the data needed to evaluate the performance of the program?	What are the results of the evaluation? NOTE: include student ratio with all results.	How will you use this information to improve the program
Apply knowledge of the air conditioning system to repair problems.	ACR 110 Heating Fundamentals	Students will Identify components and discuss the operation of a gas heating system.	70% of students will pass Ch. 31 Exam with a score of 70 or greater.	Spring 2020	All students (100%) passed Ch. 31 exam with a score of 70 or greater. The cohort average was 87.8%.	The expected level of learning was met and students will continue to review the basic necessary steps on gas heat operation. It is expected that the students must master the sequence of operations of a gas heating unit as they move through this chapter. This involves giving the students periodic quizzes to show that they have retained this sequence of operations.

STUDENT LEARNING OUTCOMES FOR AAS.ACR -- 2020-2021

A. Program Student Learning Outcomes	B. What courses are PSLOs Assessed	C. Methods for Outcomes Assessment	D. Expected Level of Program Performance	E. Data Collection	F. Results	G. Plan For Improvement
What should the graduates of your program be able to do?	Where do you see evidence that the student can do these things?	How does your program evaluate student/graduate skills/abilities?	What is the expected level of student performance <u>for the program</u> ?	When will you collect the data needed to evaluate the performance of the program?	What are the results of the evaluation? NOTE: include student ratio with all results.	How will you use this information to improve the program
Demonstrate how to read electrical diagrams and diagnose electrical circuits.	ACR 106 Basic Electricity	Students will demonstrate how to measure the motor winding resistance on a single phase and three -phase motor.	70% of students will pass Ch. 5 exam with a 70% or better.	Fall 2020	8 of 11 students (72%) of students passed the Ch. 5 Exam with a 70% or better. The cohort average was 72%.	The expected level of learning was met and extra time will be devoted to ensuring students can master the testing of single phase and three phase motors and check for resistance and grounding.

STUDENT LEARNING OUTCOMES FOR AAS.ACR -- 2020-2021

A. Program Student Learning Outcomes	B. What courses are PSLOs Assessed	C. Methods for Outcomes Assessment	D. Expected Level of Program Performance	E. Data Collection	F. Results	G. Plan For Improvement
What should the graduates of your program be able to do?	Where do you see evidence that the student can do these things?	How does your program evaluate student/graduate skills/abilities?	What is the expected level of student performance <u>for the program</u> ?	When will you collect the data needed to evaluate the performance of the program?	What are the results of the evaluation? NOTE: include student ratio with all results.	How will you use this information to improve the program
Demonstrate how to read temperature/pressure charts and diagnose problems within the system.	ACR 101 Fundamentals of Refrigeration	Students will demonstrate how to convert temperature to pressure on pressure temperature charts.	70% of students will pass Exam 2 with a score of a 70% or greater.	Fall 2020	18 of 19 students (94%) passed Exam 2 with a score of 70% and greater. The cohort average was 88.84%.	The expected level of learning was met and students will continue to be given different temperature/pressure scenarios to develop their skills.

CONTINUOUS STUDENT IMPROVEMENT

This Cycle's Results and Comparison to Last Cycle's and Recommended Actions:

When evaluating this cycle's performance with data from the previous cycle, we can see that student performance was down in some areas and improved in others. We did have one class where we did not have any data to compare with the last cycle. Part of this can be attributed to one of the full-time instructors had retired, and the department hired a new full-time instructor.

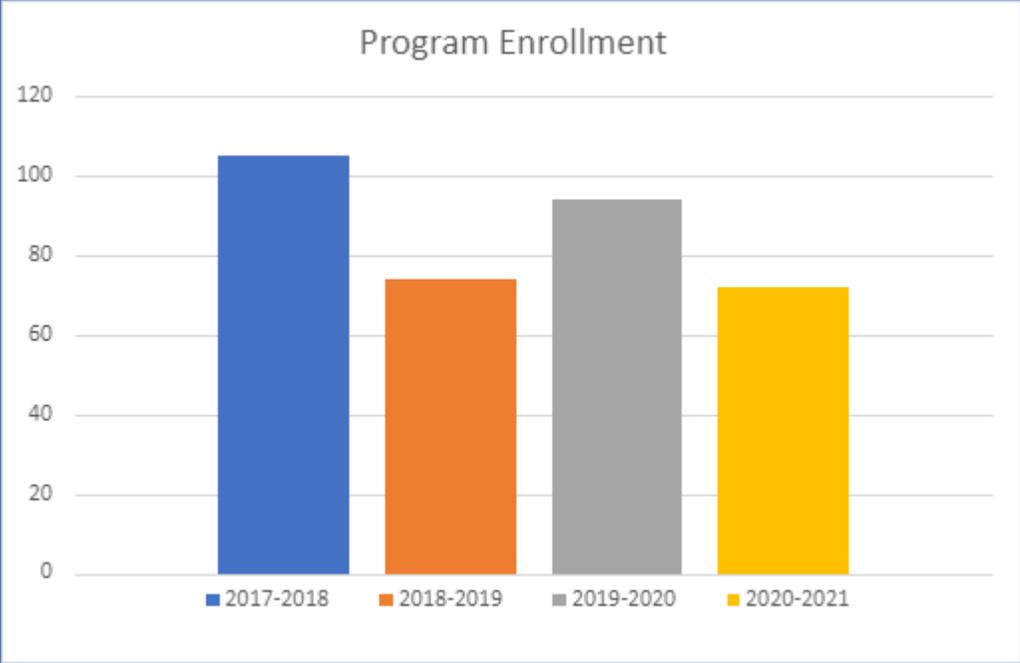
An adjunct instructor was hired because of the addition of new dual enrollment HVAC classes for both the main campus and the new Continuum (remote campus). The new full-time instructor is no longer with the college and the adjunct replaced his position. All of this created some challenges for the students in adjusting to the new teaching styles and scenarios.

When looking at the first PSLO from ACR 120 we can see performance was slightly down from the last cycle. The results were not down drastically and may be as a result of the new instructor's style of teaching and helping students understand the material. The performance of the PSLO's for ACR 101 and 110 remained relatively the same. We do not feel that anything should be changed in these two areas. We will continue to monitor these two PSLO's to make sure performance is maintained.

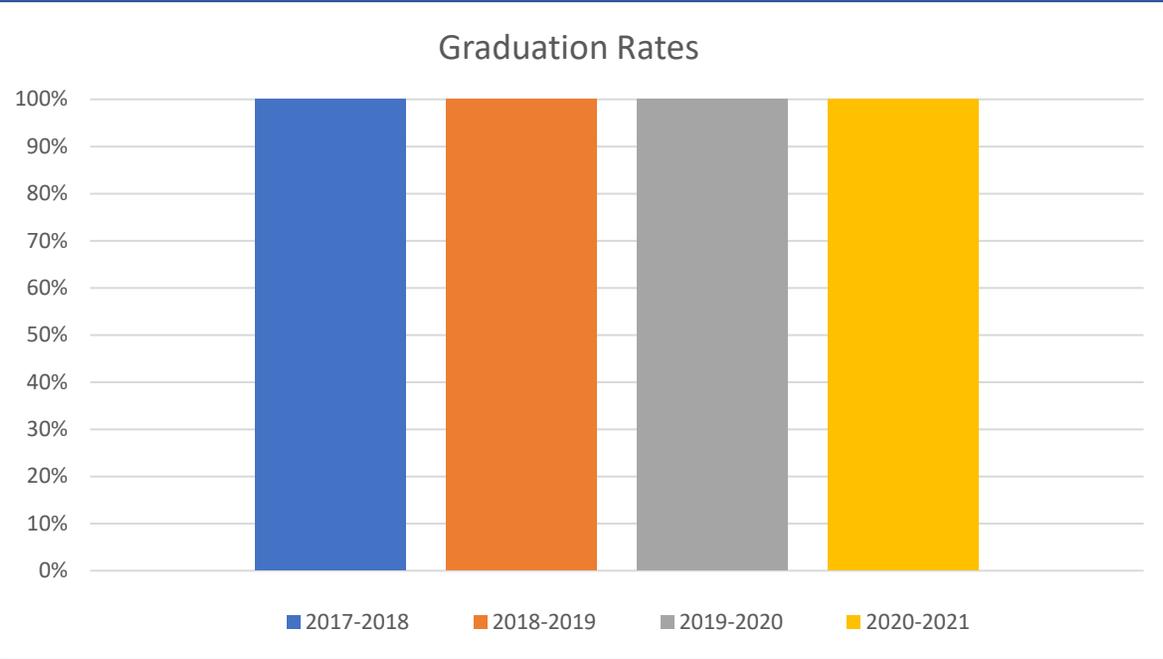
The performance data for PSLO for ACR 106 was down. This has to do with this particular subject. Electricity is not only hard to teach, but also hard for the students to comprehend as well. Many students are intimidated when working with electricity and this prevents students from moving forward until they feel comfortable using meters and understanding how to check circuits. This was also the first time this new instructor taught electricity and therefore this may have hindered students' ability to understand the assessment. More time will be devoted to helping students become familiar around live and dead circuits and understand how to check them.

Overall, the HVAC faculty feels that performance will continue to improve. All the HVAC students from these different cohorts have graduated and most of all of them are working in the field. Many have gone on to pass the SC Mechanical Contractors exam and EPA exam.

PROGRAM VITAL STATISTICS

Indicator	Trend Analysis	Action Plans										
<div style="text-align: center;">  <p style="text-align: center;">Program Enrollment</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Year</th> <th>Enrollment</th> </tr> </thead> <tbody> <tr> <td>2017-2018</td> <td>105</td> </tr> <tr> <td>2018-2019</td> <td>75</td> </tr> <tr> <td>2019-2020</td> <td>95</td> </tr> <tr> <td>2020-2021</td> <td>75</td> </tr> </tbody> </table> </div>	Year	Enrollment	2017-2018	105	2018-2019	75	2019-2020	95	2020-2021	75	<p>Enrollment has been steady. The reason for the fluctuation is due to the new class of dual enrollment students every other fall. Overall, HVAC has always maintained full classes.</p>	<p>HVAC faculty does not see any reason to change anything as enrollment has continued to stay steady.</p>
Year	Enrollment											
2017-2018	105											
2018-2019	75											
2019-2020	95											
2020-2021	75											

Indicator	Trend Analysis	Action Plans										
<p style="text-align: center;">Fall to Spring Persistence</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Year</th> <th>Persistence (%)</th> </tr> </thead> <tbody> <tr> <td>2017-2018</td> <td>76%</td> </tr> <tr> <td>2018-2019</td> <td>78%</td> </tr> <tr> <td>2019-2020</td> <td>62%</td> </tr> <tr> <td>2020-2021</td> <td>50%</td> </tr> </tbody> </table>	Year	Persistence (%)	2017-2018	76%	2018-2019	78%	2019-2020	62%	2020-2021	50%	<p>Part of the dip in the graph is due to the fact that the certificate students have migrated to the degree program. Some students will start out with a track toward a certificate, but decide later that they want to pursue the degree.</p>	<p>Although this data is for the certificate program, HVAC will continue to encourage students to continue with the degree program. HVAC faculty will continue to monitor the fall to spring persistence.</p>
Year	Persistence (%)											
2017-2018	76%											
2018-2019	78%											
2019-2020	62%											
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Indicator	Trend Analysis	Action Plans										
<p style="text-align: center;">Graduation Rates</p>  <table border="1" data-bbox="113 175 1276 834"> <caption>Graduation Rates Data</caption> <thead> <tr> <th>Year</th> <th>Graduation Rate</th> </tr> </thead> <tbody> <tr> <td>2017-2018</td> <td>100%</td> </tr> <tr> <td>2018-2019</td> <td>100%</td> </tr> <tr> <td>2019-2020</td> <td>100%</td> </tr> <tr> <td>2020-2021</td> <td>100%</td> </tr> </tbody> </table>	Year	Graduation Rate	2017-2018	100%	2018-2019	100%	2019-2020	100%	2020-2021	100%	<p>Graduation rates for the certificate continue to stay steady from year to year. HVAC also encourages students to continue on and finish with the degree program.</p>	<p>HVAC faculty feel as if no action needed at this time.</p>
Year	Graduation Rate											
2017-2018	100%											
2018-2019	100%											
2019-2020	100%											
2020-2021	100%											

Indicator	Trend Analysis	Action Plans										
<p style="text-align: center;">Job Placement Rates</p> <table border="1"> <caption>Job Placement Rates Data</caption> <thead> <tr> <th>Year</th> <th>Rate (%)</th> </tr> </thead> <tbody> <tr> <td>2017-2018</td> <td>78%</td> </tr> <tr> <td>2018-2019</td> <td>81%</td> </tr> <tr> <td>2019-2020</td> <td>100%</td> </tr> <tr> <td>2020-2021</td> <td>0%</td> </tr> </tbody> </table>	Year	Rate (%)	2017-2018	78%	2018-2019	81%	2019-2020	100%	2020-2021	0%	<p>The HVAC industry is growing year after year. HVAC contractors are always looking for new students and employees to fill positions. HVAC is an industry that will continue to grow on into the future.</p>	<p>The HVAC department will continue to hold advisory meetings and will continue to reach out to employers and help place students into the work force.</p>
Year	Rate (%)											
2017-2018	78%											
2018-2019	81%											
2019-2020	100%											
2020-2021	0%											