Program Review

Heating, Ventilation, Air Conditioning, and Refrigeration
Associate in Applied Science (AAS), Certificate and Short-Term Certificate (STC)
(CIP: 470201)

Program Purpose

What is the published purpose/mission of the program?
The Heating, Ventilation, Air Conditioning, and Refrigeration Program prepares students for entry-level employment in the HVAC-R field.
How does the program's purpose/mission fit into the overall mission of the college?
This program supports mission goals three and seven.
Do any changes need to be made to the program's purpose/mission? Explain.
No changes are needed at this time.
Do any changes need to be made to how the program's purpose/mission fits into the overall college mission? Explain.
No changes are needed at this time.

Program Learning Outcomes

What are the program learning outcomes, and how are they assessed?

Outcome	Assessment
The student will function as a competent entry-level HVAC-R technician by demonstrating knowledge and skills retained from coursework	In ADM 150-154, the student will be evaluated on his/her ability to function as a competent entry-level industrial maintenance technician in a work experience setting by scoring at least 80% on a comprehensive work experience evaluation.
The student will perform all tasks in a safe manner.	In ADM 150-154, throughout the class, the student will perform tasks in a safe manner with 100% proficiency according to the standardized Occupational Safety and Health Rubric.
The student will exhibit a positive work ethic.	In ADM 150-154, the student's work ethic will be assessed by scoring at least 30 points on a standardized Workplace Readiness Skills Rubric.

What can students do with the knowledge they have after completing the program?

Students will be able to obtain entry to mid level positions within the HVAC field.

What are the plans for reviewing the program learning outcomes and revising them?

The program's curriculum is constantly in review to determine what changes need to be made.

Assessed Needs and Assumptions

What are the occupational projections for careers for which the program trains?
The HVAC field has a shortage of employees at this point in time. Occupational projections are above average for employment opportunities.

Based on the occupational projections, what is the employment outlook for graduates of the program?
Graduates of the program should have many job opportunities in the HVAC field.
What is the outlook for the continued need of the program within the mission of the college?
The HVAC field is a program that is in high demand and should be considered to be a needed and valued program.

Structure

What credentials does the program offer?

The HVAC-R Program offers the following credentials:

- Associate in Applied Science Degree in Air Conditioning and Refrigeration
- Certificate in Air Conditioning and Refrigeration
- Short-Term Certificate in Air Conditioning and Refrigeration

What are the requirements for each credential?

AAS in Air Conditioning and Refrigeration
Area I: Written Composition (3 hours total)
ENG 101—English Composition I (3 hours)
Area II: Humanities and Fine Arts (6 hours total)
SPH 107—Fundamentals of Public Speaking (3 hours)
Humanities and Fine Arts Elective (3 hours) Choose from ART 100, 203, 204; MUS 101; PHL 206; REL 100, 151, 152; SPA 201, 202; THR 120, 126
Area III: Natural Science and Mathematics (9-11 hours total)
CIS 146 (3 hours)
Any 100 level MTH (3-4 hours)
Math, Science, or CIS elective (3-4 hours)
Area IV: History, Social, and Behavioral Sciences (3 hours total)
Area IV Elective (3 hours) Choose from: ECO 231, 232; GEO 100, 101; HIS 101, 102, 201, 202; POL 211; PSY 200, 210; SOC 200, 210
Area V: Pre-Professional, Major, and Elective Courses (51hours total)
ACR 111 Principles of Refrigeration (3 hours)
ACR 112 HVACR Service Procedures (3 hours)
ACR 113 Refrigeration and Piping Practices (3 hours)
ACR 121 Principles of Electricity for HVACR (3 hours)
ACR 122 HVACR Electric Circuits (3 hours)
ACR 123 HVACR Electrical Components (3 hours)
WKO 106 (3 hours)
WKO 110, 131, 132, 133, or 134
Cooperation Education Electives (3 hours) Choose from: ADM 150, ADM 151, ADM 152, ADM 153, ADM 154
Technical Specialty (24 hours) ACR courses by advisement
Total Hours Required for Degree: 72-74 hours

Certificate in Air Conditioning and Refrigeration
ENG 101 English Composition (3 hours)
SPH 107 Fundamentals of Public Speaking (3 hours)
MTH 116 Mathematical Applications or any 100 level Math (3-4 hours)
CIS 146 Microcomputer Applications (3 hours)
WKO 106 Workplace Skills (3 hours)
WKO 110, 131, 132, 133, or 134 (3 hours)
ACR 111 Principles of Refrigeration (3 hours)
ACR 112 HVACR Service Procedures (3 hours)
ACR 113 Refrigeration and Piping Practices (3 hours)
ACR 121 Principles of Electricity for HVACR (3 hours)
ACR 122 HVACR Electric Circuits (3 hours)
ACR 123 HVACR Electrical Components (3 hours)
Total Hours Required for Certificate: 54-55 hours

Short-Term Certificate in Air Conditioning and Refrigeration
ACR 111 Principles of Refrigeration (3 hours)
ACR 112 HVACR Service Procedures (3 hours)
ACR 113 Refrigeration and Piping Practices (3 hours)
ACR 121 Principles of Electricity for HVACR (3 hours)
ACR 122 HVACR Electric Circuits (3 hours)
ACR 123 HVACR Electrical Components (3 hours)
WKO 110, 131, 132, 133, or 134 (3 hours)
Total Hours Required for Short-Term Certificate: 21 hours

How often are the requirements for the degree reviewed?
The degree requirements are set by the state.
Are there any plans for revising the degree requirements?
Not at this time.

Accreditation

What is the institutional accreditation for the program?
The Heating, Ventilation, Air Conditioning and Refrigeration program is within the institutional accreditation granted by the SACSCOC and reaffirmed in 2015.
Does the program have any program-specific accreditations?
Not at this time

Instructors

Who are the current instructors in the program, and what are their credentials?

Name	**Degree/Qualifications**
Casey Pearson	• AAS ACR
	• MS/ Univ. of Alabama
	• BS/ Jacksonville State Univ

How have the instructors in the program developed professionally over the past two years?

2016-2017
N/A

2017-2018
N/A

What are any planned professional development activities for instructors in the program?
Yearly Continuing Education

Are any additional instructors anticipated within the next five years? If so, please explain.
Unknown at this time. Enrollment numbers with drive this.

Instructional Quality and Enhancements/Curriculum Design

How is the general education core incorporated into the course of study for this program?
The AAS degree includes 21-23 credit hours of general education in the 72-74 credit-hour total: ENG 101; SPH 107; three credit hours of humanities or fine arts; MTH 116 or any 100-level math; CIS 146; a 3-4 hour math, science or CIS elective; and three credit hours of history, social, or behavioral sciences.
Are all course syllabi current and posted on the NACC website? Explain.
Yes. The current courses are on the NACC website and explained.
How is curriculum of each program option evaluated to ensure it is relevant and current? Examples include advisory committee suggestions, student learning outcome evaluations, student evaluations, etc.
Through advisory committee meetings and student evaluations.
Describe changes that have been made in the delivery of the courses in each option of the program as a result of review of the program learning outcomes over the last five years.
N/A
Are courses in the program scheduled to maintain availability and accessibility in accordance with the college's mission? Explain.
Yes, Courses follow the student handbook.

Program Resources

Describe the physical facilities and resources, including any laboratories, used in the program. Are the physical facilities and resources adequate? Explain.
Facilities are adequate. Classrooms and labs have up to date materials and equipment.
Are there any plans for major expansion or upgrade of facilities or major replacement/expansion of equipment? Explain the rationale and include projected costs.
5 year timeframe expects an expansion and upgrade of the program.
Describe the technological resources used in the program. Are the technological resources adequate? Explain.
All possible means of technology is used in the program.
Are there any plans for major expansion or upgrade of technological resources? Explain the rationale and include projected costs.
N/A
Describe the library resources that are available to the program.
Examples of library resources provided by the NACC Learning Resources Center include the following: books, eBooks (full-text electronic books), and full-text journal, magazine, and newspaper articles. Depending on format, these items may be accessed electronically or in print. Online tutorials, as well as program-specific LibGuides pages, provide instruction in the use of these resources. Library staff are available to assist students and faculty in person, online, and by phone.
Are the library resources adequate for the program? Explain.
Students have access to library resources.
Are there any plans for expansion or upgrade of library resources for the program? Explain the rationale and include projected costs.
N/A

Advisory Committee

Is an advisory committee in place for the program? If so, list the committee members and their affiliation in the community. If not, are plans in place to establish an advisory committee?
A committee is in place. Erica Estes-Southern HVAC, Brandt Estes-Southern HVAC, Ronald Knudson-Trane, Cory Palmer-Johnson Controls, Jesse Bryant-Bryant HVAC, Paul Bryant-Bryant HVAC
What is the purpose and role of the advisory committee?
To assist and provide support for the ACR program.
Describe any changes that have been made to the program as a result of advisory committee activity or suggestions.
Updated equipment, resources, guidance in the program.

Enrollment and Completions

What are the enrollment trends in the program over the last five years?

Number of Students Enrolled in HVAC-R Courses
AY 2016-2017 through AY 2018-2019

2014-2015	2015-2016	*2016-2017	2017-2018	2018-2019
		17	20	17

Source: Office of Institutional Planning and Assessment. NACC ACCESS/400 database system. March 12, 2020.
*Program began in Spring 2017.

What are the enrollment trends in the program over the last five years by gender?

Number of Students Enrolled in HVAC-R Courses
by Gender
AY 2016-2017 through AY 2018-2019

	2014-2015	2015-2016	*2016-2017	2017-2018	2018-2019
Male			16	19	16
Female			1	1	1
Total			**17**	**20**	**17**

Source: Office of Institutional Planning and Assessment. NACC ACCESS/400 database system. March 12, 2020.
*Program began in Spring 2017.

What are the enrollment trends in the program over the last five years by race/ethnicity?

Number of Students Enrolled in HVAC-R Courses
by Race/Ethnicity
AY 2016-2017 through AY 2018-2019

	2014-2015	2015-2016	*2016-2017	2017-2018	2018-2019
African American			-	-	2
Asian			-	-	-
Hispanic			-	-	-
Native American			1	2	-
Other			-	-	1
White			16	18	14
Total			**17**	**20**	**17**

Source: Office of Institutional Planning and Assessment. NACC ACCESS/400 database system. March 12, 2020.
*Program began in Spring 2017.

What are the total number of enrollments and credit-hour production over the last five academic years?

	*2016-2017	2017-2018	2018-2019
Total Enrollments	91	59	45
CHP	273	177	135

What are the course success and retention rates in the program over the last three academic years?

Course Success and Retention Rates HVAC-R Courses
AY 2016-2017 through AY 2018-2019

Year	Enrollments	Withdrawal Rate		Failure Rate		Pass Rate (A-D)		Success Rate (A-C)	
		No.	%	No.	%	No.	%	No.	%
***2016-2017**	58	1	1%	8	10%	49	89%	49	89%
2017-2018	59	0	0%	2	3.4%	57	97%	57	97%
2018-2019	45	0	0%	0	0%	45	100%	45	100%

Source: Office of Institutional Planning and Assessment. NACC ACCESS/400 database system. March 12, 2020.
*Program began in Spring 2017.

What are the retention rates in the program over the last five academic years?

Student Fall-to-Fall Retention HVAC-R Program
Fall Cohorts 2014-2019

Fall 2014-Fall 2015	Fall 2015-Fall 2016	*Fall 2016-Fall 2017	Fall 2017-Fall 2018	Fall 2018-Fall 2019
		57.1%	12.5%	75%

Source: Office of Institutional Planning and Assessment. NACC ACCESS/400 database system. March 12, 2020.
*Program began in Spring 2017.

What do the data indicate about enrollment and student retention in the program?

Enrollment numbers are increasing each semester.

What are the plans for increasing enrollment and retention rates in the program?

Promoting the program in the geographical area to inform the public that the ACR program exists at NACC.

How many students have earned a credential in the program in the last five academic years?

Completers in HVAC-R Academic Years 2016-2017 through 2018-2019					
Credential	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**
AAS		1	-	2	1
CER		-	-	3	1
STC		-	2	4	2

Note: A student who earned multiple awards is counted in all applicable rows.
Source: Office of Institutional Planning and Assessment. NACC ACCESS/400 database system. March 12, 2020.

What are the plans for increasing the completion rates in the program?

Keeping students enrolled in the program. Giving students the opportunity to see how completing the course will benefit them.

Licensure passage rates

Does the program lead to the opportunity for licensure? If so, what are the licensure opportunities?
Yes, HVAC state license and EPA licensure.
What are the licensure pass rates, if applicable?
N/A
Does the program or any coursework in the program lead to any type of industry certification? If so, what are the certifications?
EPS certification
What are the industry certification pass rates, if applicable?
N/A

Job Placement Rates and Employer Satisfaction

What are the job placement rates for graduates of the program?
N/A new program
Is employer satisfaction of graduates assessed? If so, are employers satisfied with graduates of the program? Please describe.
N/A new program

Student Follow-Up Reports

Is student satisfaction with the program assessed? If so, are students in the program satisfied with the program? Please describe.
N/A new program
Is alumni satisfaction with the program assessed? If so, are alumni of the program satisfied with the program? Please describe.
N/A new program

Findings of Review THIS IS THE MOST IMPORTANT PART OF THE PROGRAM REVIEW!

What are the strengths of the program?
The program provides essential skills needed for students to obtain employment in the HVAC-R field.
What are recommendations for improvement?
Provide students with more real time applications of ACR scenarios.
Please provide any other findings that are pertinent to the review.

Report Affirmed by:

Signed:	**Date: 5/14/2020**
Signed	
Signed	
Signed	

SIGNATURES ON FILE IN OFFICE OF INSTITUTIONAL PLANNING AND ASSESSMENT