



Division 2: Business and Industrial Studies Guided Pathway Division

Dr. Paul Flor, Dean of Student Learning

Air Conditioning and Refrigeration Program Review Fall 2021

Prepared by:

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Overview of the Program:

A) Program Narrative Description:

The Air Conditioning and Refrigeration (ACR) Program prepares students for employment in the field and provides upgrade opportunities for currently employed personnel. By completing the degree or certificate requirements, the student will gain proficiency in service, troubleshooting, installation, and energy efficient operation of residential, commercial, and industrial heating, air conditioning, refrigeration, and control systems. Students will learn to read wiring diagram, diagnose control circuits, operate test equipment, and service electric and electronic controls. Competencies will be assessed in accordance with the Environmental Protection Agency certificate criteria. Students completing the program may expect to enter the industry as an apprentice or entry-level heating, ventilation, air conditioning, and controls technician.

The ACR Program at Compton College belongs to the California Community College Strong Workforce Program. We are members of the Los Angeles County Regional Heating, Ventilation, and Air Conditioning (HVAC) Collaborative. Some recommendations of the HVAC Collaborative are:

- Maximizing sustained industry engagement
- Strengthening career pathways and programs of study
- Expanding opportunities for work-based learning
- Attending to the need for new Career Technical Education (CTE) faculty recruitment and professional development and externships for current faculty
- Addressing the needs of business and industry in identified priority and emerging sectors
- Supporting regional marketing, curriculum alignment, streamlined regional processes as well as regional labor market data collection and analysis for data-informed decision making.

Strong Workforce Program: More and Better Career Technical Education to Increase Social Mobility and Fuel Regional Economies with Skilled Workers.

To develop more workforce opportunity and lift low-wage workers into living-wage jobs, California took a bold step in 2016 to create one million more middle-skill workers. At the recommendation of the California Community College Board of Governors, the [Governor and Legislature approved the Strong Workforce Program](#), adding a new annual recurring investment of \$248 million to spur career technical education (CTE) in the nation's largest workforce development system of 115 colleges. Grouped into seven areas targeting student success, career pathways, workforce data and outcomes, curriculum, CTE faculty, regional coordination and funding, this leading-edge state economic development program is driven by "more and better" CTE. The "more" is increasing the number of students enrolled in programs leading to high-demand, high-wage jobs. The "better" is improving program quality, as evidenced by more students completing or transferring programs, getting employed or improving their earnings.

The Strong Workforce Program focuses on data-driven outcomes rather than activities, along with an emphasis on innovation and risk-taking. In this way, colleges can be more responsive to labor market conditions and student outcomes. CTE Data Unlocked, a component of the program, helps colleges use CTE data to strengthen regional workforce plans by furthering local processes like program review, accreditation, and integrated planning.

This new ongoing funding is structured as a 60 percent Local Share allocation for each community

college district and a 40 percent Regional Share determined by a regional consortium of colleges to focus on the state's seven macro-economic regions. Both the Local and Regional Share require local stakeholders to collaborate, including industry and local workforce development boards. As much as possible, this program builds upon existing regional partnerships formed in conjunction with the federal Workforce Innovation and Opportunity Act, state Adult Education Block Grant and public school CTE programs.

Vision

Compton College will be the leading institution of student learning and success in higher education.

Mission Statement

Compton College is a welcoming environment where the diversity of our students is supported to pursue and attain academic and professional excellence. Compton College promotes solutions to challenges, utilizes the latest techniques for preparing the workforce and provides clear pathways for transfer, completion, and lifelong learning.

B) Degrees and/or certificates offered by the program.

The ACR Program has an A.S. Degree, 1 Major Certificate of Achievement, and 3 Stackable Certificates of Achievements.

- A.S. Degree in AIR CONDITIONING AND REFRIGERATION:

Course	Course Description	Units
ACR 121	Air Conditioning Fundamentals	4
ACR 123	Commercial Refrigeration Applications	4
ACR 125	Energy Efficient Residential, Commercial and Industrial Air Conditioning	4
ACR 127	Heating Technologies	4
ACR 130	Electric Controls	2
ACR 131	HVAC Electronics	2
ACR 134	HVAC Customer Service and Industry Certifications	1
ACR 136	Electrical Applications	4
ACR 160	Refrigeration and Air Conditioning Control Systems	4
ACR 161	Fundamentals of Automation Systems	3
ACR 162	Energy Control and Optimization Systems	4
	Total	36
	<i>Recommended Electives:</i>	
ACR 95	<i>Cooperative Work Experience Education</i>	<i>2 to 4</i>
BUS 15	<i>Business Mathematics</i>	<i>3</i>
CIS 13	<i>Computer Information Systems</i>	<i>3</i>

- Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Certificate of Achievement

Course	Course Description	Units
ACR 121	Air Conditioning Fundamentals	4
ACR 123	Commercial Refrigeration Applications	4
ACR 125	Energy Efficient Residential, Commercial and Industrial Air Conditioning	4
ACR 127	Heating Technologies	4
ACR 130	Electric Controls	2
ACR 131	HVAC Electronics	2
ACR 134	HVAC Customer Service and Industry Certifications	1
ACR 136	Electrical Applications	4
ACR 160	Refrigeration and Air Conditioning Control Systems	4
ACR 161	Fundamentals of Automation Systems	3
ACR 162	Energy Control and Optimization Systems	4
BUS 115	Business Mathematics	3
	Total	39

- Air Conditioning Certificate of Achievement

Course	Course Description	Units
ACR 121	Air Conditioning Fundamentals	4
ACR 125	Energy Efficient Residential, Commercial and Industrial Air Conditioning	4
ACR 127	Heating Technologies	4
ACR 134	HVAC Customer Service and Industry Certifications	1
ACR 136	Electrical Applications	4
	Total	17

- Air Conditioning and Refrigeration Electric Controls Certificate of Achievement

Course	Course Description	Units
ACR 130	Electric Controls	2
ACR 131	HVAC Electronics	2
ACR 134	HVAC Customer Service and Industry Certifications	1
ACR 136	Electrical Applications	4
ACR 160	Refrigeration and Air Conditioning Control Systems	4
	Total	13

- Refrigeration Certificate of Achievement

Course	Course Description	Units
ACR 121	Air Conditioning Fundamentals	4
ACR 123	Commercial Refrigeration Applications	4
ACR 134	HVAC Customer Service and Industry Certifications	1
ACR 160	Refrigeration and Air Conditioning Control Systems	4
	Total	13

- Stackable Certificates of Accomplishments:

Degree & Certificate(s) are stackable to obtain all certificates offered.

C) HVACR program fulfills the college's mission and aligns with the strategic initiatives:

The ACR Program at Compton College has taught the basics of the HVAC trade to its diversity of students to promote student success. We strive to make Compton College a leading institution of student learning and success in higher education.

The California Community Colleges Chancellor's Office has awarded the ACR Program at Compton College, a **Stars Award**. California Community Colleges Strong Workforce Stars is an annual recognition and celebration for career education programs, also known as career technical education, whose student's show significant gains in factors important for advancing social mobility – a substantial increase in earnings, attainment of a living wage and a job closely matched with the field of study.

(<http://doingwhatmatters.cccco.edu>)

The Strong Workforce Program is a \$1 billion statewide community college program designed to boost Career and Technical Education programs on campuses throughout California. Under the program, Compton College is receiving well over \$500,000 annually in state funds, beginning this academic year for three years.

(<http://doingwhatmatters.cccco.edu>)

Compton College earned Strong Workforce Stars recognition in the Energy, Construction & Utilities sector for its Heating, Ventilation, and Air Conditioning (HVAC) stackable credentials program that now leads to an associate degree. The program includes an Associated Degree, and three Certificates of achievement, and are stackable.

The HVAC stackable programs are successful for three key reasons:

- a. Scheduling of courses is methodical and student-centered. In theory, students should be able to complete the whole program in a year and a half and then readily secure gainful employment.
- b. Student-recruitment efforts from past student success stories.
- c. Advisory board and cultivated relationships with the industry. They reach out consistently, exchanges that often lead to employment opportunities for students. Ueda is conscientious and eager to see students grow. His students are passionate about the field and find that they can boost their earnings doing something they enjoy. (<http://doingwhatmatters.cccco.edu>)

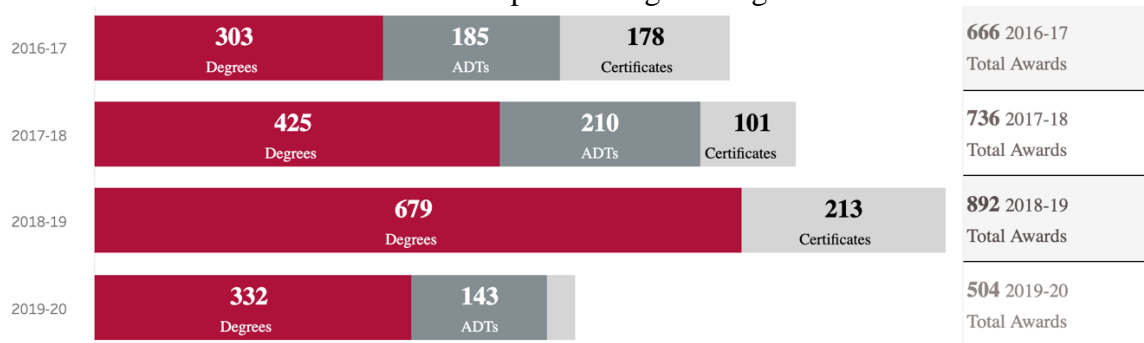
STRATEGIC INITIATIVES:

GOAL 1: Improve recruitment, enrollment, retention, and completion rates for our students.

Degrees and Certificates in the ACR Program show improvement but have been affected by the Corona Virus Pandemic just like the rest of the College Programs here at Compton College, and other Colleges alike.

	2015-16		2016-17		2017-18		2018-19		Grand Total
	Certific..	Degrees	Certific..	Degrees	Certific..	Degrees	Certific..	Degrees	
Air Conditioning & Refrig.	74	< 5	81	< 5	31	< 5	48	< 5	241

Success and Retention Rates above Compton College average.



GOAL 2: Support the success of all students to meet their education, and career goals.

The goal of the ACR Program is to teach anyone the HVAC Trade if they are willing to make to put in the effort to learn. I’m only the guide, trying to make student’s lives better. We try to make the learning a trade as comfortable as possible for the students. Everyone learns at different ways and different in different modalities. Some students pick up the information quickly while others take longer to comprehend the material. We form learning groups, so the students can learn from each other.

GOAL 3: Support the success of students through the use of technology.

The Institutions Early Alert program has helped to assist students avoid poor performance. Early Alert is an early alert program to identify and notify students of support services and programs in a timely manner that provides and ensures students optimal success.

Through the Perkins Grant, local, Strong Workforce Funds, and regional HVAC Collaborative Funding, the ACR Program will instruct students about energy auditing, green awareness, and free cooling, by using a Net Zero Tiny House trainer, and the use of high-efficient trainers. Tools to perform energy audits and curriculum to instruct students will be purchased and implemented into current instruction.

GOAL 4: Offer excellent programs that lead to degrees and certificates in Allied Health and Technical fields.

The ACR Program continues to upgrade instruction to students to keep up with new technologies in the HVAC Trade. The HVAC Collaborative allows the ACR Program to network with instructors across the state, industry leaders in the HVAC community, officials from the Chancellors office, and puts Compton College on the map as a leader in education.

The HVAC Collaborative is giving free of charge to students the chance to take the assessments for the Employment Ready Certificates, which are HVAC Industry recognized.

The Refrigeration Certificate of Achievement will be offered at day & evening course options. This gives the night students that might have typical 9-5 job ability to obtain a degree or certificate.

GOAL 5: Establish partnerships in the community and with the K-12 schools.

Dr. Flor & previously Dr. Murray have consortia through AB 86 called the Tri City Consortia. These are the feeder school districts of Compton, Lynwood, and Paramount. They are creating partnerships in the community and with the K-12 school districts.

Doing what matters, the HVAC Collaborative is working on career pathways for Community Colleges.

As much as possible, this program builds upon existing regional partnerships formed in conjunction with the federal Workforce Innovation and Opportunity Act, state Adult Education Block Grant and public school CTE programs. The Strong Workforce Program will continue to focus on execution and evaluation. Source: <http://doingwhatmatters.cccco.edu>

D) Status of recommendations from your previous program review:

Prioritized recommendations and needs of your program/department -- 2017

- Hire part-time instructor(s). This was fulfilled; However, since the recent announcement of the part time instructor, there will be a need to replace this instructor moving forward.
- Update/upgrade facilities to provide additional square footage that is not shared with the smog referee. This square footage would allow the students to work safely on equipment. In addition, an updated power source is required to run equipment in various locations of the lab. Program review goal that supports offering excellent programs that lead to degrees and certificates in the HVACR field. This recommendation continues to be placed on hold and has yet to be fulfilled.

Items above are in need of fulfillment as are the previous years of Program Annual Plans that have been submitted. Some “pending” items on the program plan have been commenced; However, have also yet to be fulfilled even when they have been approved.

Analysis of Research Data:

A) Head count of students in the program:

Historically, enrollment trends to be larger in the Spring semester (Fall average 50 students), (Spring average 58 students). Females are still hard to attract to the ACR Program.

The ACR Program helps to sponsor the Women in Trades Conference every year hoping to enroll females into courses. Our students are mostly Latino and African American. Most students come into the ACR Program to earn certificates. Some decide later to earn an A.S. Degree. Most students are part time students.

Student Counts

Gender	Spring '17	Summer '17	Fall '17	Spring '18	Summer '18	Fall '18	Spring '19	Summer '19	Fall '19	Spring '20	Fall '20
Female	2%(<5)		1%(<5)	2%(<5)		6%(<5)	3%(<5)	6%(<5)	5%(<5)	2%(<5)	6%(<5)
Male	98%(56)	100%(12)	99%(68)	98%(64)	100%(13)	94%(67)	97%(58)	94%(16)	95%(41)	98%(49)	94%(17)
Grand Total	100%(57)	100%(12)	100%(69)	100%(65)	100%(13)	100%(71)	100%(60)	100%(17)	100%(43)	100%(50)	100%(18)

Ethnicity

Ethnicity	Spring '17	Summer '17	Fall '17	Spring '18	Summer '18	Fall '18	Spring '19	Summer '19	Fall '19	Spring '20	Fall '20
American Indian or..	2%(<5)										
Asian	7%(<5)		6%(<5)	12%(8)	15%(<5)	4%(<5)	7%(<5)	12%(<5)	2%(<5)	2%(<5)	
Black or African A..	26%(15)	33%(<5)	25%(17)	22%(14)	31%(<5)	17%(12)	13%(8)	18%(<5)	9%(<5)	20%(10)	6%(<5)
Latinx	51%(29)	50%(6)	61%(42)	62%(40)	54%(7)	70%(50)	72%(43)	53%(9)	77%(33)	70%(35)	89%(16)
Two or More Races	7%(<5)	8%(<5)	4%(<5)	2%(<5)		4%(<5)					
Unknown/Non-Res..							3%(<5)		5%(<5)	2%(<5)	6%(<5)
White	7%(<5)	8%(<5)	4%(<5)	3%(<5)		4%(<5)	5%(<5)	18%(<5)	7%(<5)	6%(<5)	
Grand Total	100%(57)	100%(12)	100%(69)	100%(65)	100%(13)	100%(71)	100%(60)	100%(17)	100%(43)	100%(50)	100%(18)

B) Course grade distribution:

The percentage of success and retention rates has had slight decline in the most recent terms likely attributed to the COVID-19 Pandemic. With the ACR Program being quick to respond to the needs of students we were able to continue to offer courses to ensure student success during the COVID-19 Pandemic. As a result, many classes were transitioned to Distance Education, and instructors have completed DE Certification(s). The DE component added to all ACR courses has ensured that student can and will succeed in the program.

Grade Dist

Academic Y..	Course ID	Grade					Grand Total
		A	B	C	D	F	
2017-18	ACR-121	35(88%)	<5(10%)		<5(3%)		40(100%)
	ACR-123	24(49%)	16(33%)			9(18%)	49(100%)
	ACR-125	16(64%)	5(20%)	<5(16%)			25(100%)
	ACR-127	18(69%)	6(23%)	<5(8%)			26(100%)
	ACR-130	16(62%)	6(23%)	<5(15%)			26(100%)
	ACR-131	17(57%)	11(37%)	<5(7%)			30(100%)
	ACR-134	32(67%)	14(29%)	<5(4%)			48(100%)
	ACR-136	21(70%)	<5(10%)	<5(10%)	<5(3%)	<5(7%)	30(100%)
	ACR-160	24(62%)	9(23%)	6(15%)			39(100%)
	ACR-161	15(56%)	<5(15%)	7(26%)		<5(4%)	27(100%)
ACR-162	6(50%)	6(50%)				12(100%)	
2018-19	ACR-121	54(93%)	<5(5%)			<5(2%)	58(100%)
	ACR-123	20(91%)		<5(9%)			22(100%)
	ACR-125	18(64%)	7(25%)	<5(11%)			28(100%)
	ACR-127	27(100%)					27(100%)
	ACR-130	33(80%)	<5(7%)	<5(2%)		<5(10%)	41(100%)
	ACR-131	26(53%)	9(18%)	6(12%)		8(16%)	49(100%)
	ACR-134	35(85%)	<5(10%)	<5(2%)		<5(2%)	41(100%)
	ACR-136	24(89%)	<5(7%)			<5(4%)	27(100%)
	ACR-160	25(60%)	12(29%)	<5(7%)	<5(2%)	<5(2%)	42(100%)
	ACR-161	15(48%)	11(35%)	<5(10%)	<5(3%)	<5(3%)	31(100%)
ACR-162	13(100%)					13(100%)	
2019-20	ACR-121	9(39%)	<5(17%)	<5(17%)	<5(4%)	5(22%)	23(100%)
	ACR-123	<5(44%)	5(56%)				9(100%)
	ACR-127	5(38%)	<5(31%)	<5(23%)	<5(8%)		13(100%)
	ACR-130	6(33%)	8(44%)		<5(22%)		18(100%)
	ACR-131	13(81%)	<5(19%)				16(100%)
	ACR-134	13(100%)					13(100%)
	ACR-136	14(67%)	<5(14%)	<5(14%)		<5(5%)	21(100%)
	ACR-162	9(53%)	<5(18%)	<5(12%)		<5(18%)	17(100%)
2020-21*	ACR-121	<5(43%)	<5(29%)	<5(14%)	<5(14%)		7(100%)
	ACR-127	<5(50%)	<5(13%)	<5(25%)		<5(13%)	8(100%)
	ACR-130	5(71%)	<5(29%)				7(100%)
	ACR-131	<5(75%)		<5(25%)			<5(100%)
	ACR-134	<5(50%)	<5(17%)		<5(33%)		6(100%)
	ACR-136	<5(40%)	<5(20%)	<5(40%)			5(100%)

C) Success rates:

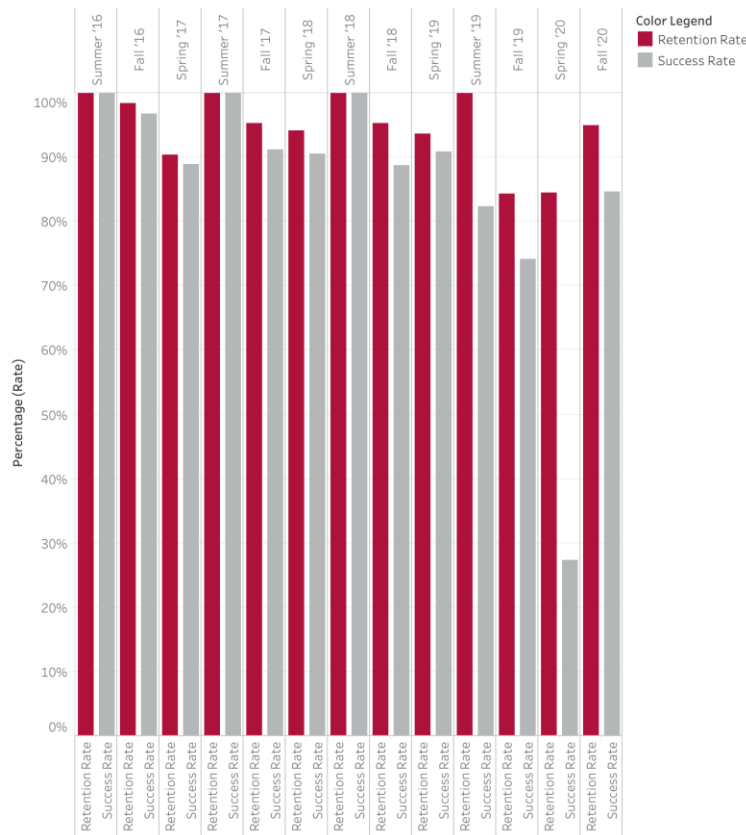
Latino and African American males make up most of the students in the ACR Program. We instruct whoever comes through our doors. We always try to enroll female students into the ACR Program. We helped to start the Women in Trades conference, which is held annually. Feeder high school senior female students are invited & encouraged to attend.

The ACR Program would like to see a 10% rise in enrollment and maintain the same success rates of the past 4-years. The ACR Program needs more non-traditional students to see how or if the data changes. The Outreach staff will have to reach those non-traditional students and those alike. If there was data on students who obtained jobs/careers, such data could and would influence our success and retention rates. The ACR Program’s success and retention rates have improved over the last 4 years -- with the exception of the 2019-2020 due to the interruption of the COVID-19 Pandemic that hurt enrollment and success rates nationwide. The data shows that we are providing an education that helps student obtain skills and certificates to aid and assist them in obtaining valuable employment.

Overall Success Rate

Academic Ye..	
2017-18	91% (371)
2018-19	90% (412)
2019-20	56% (209)
2020-21*	85% (39)
Grand Total	80% (1031)

Succ Ret Bar



Term Demographic Success (2016-2020)

Succ Gend

Gender	Summer '17	Fall '17	Spring '18	Summer '18	Fall '18	Spring '19	Summer '19	Fall '19	Spring '20	Fall '20
Female		0%(<5)	100%(<5)		93%(14)	100%(7)	100%(<5)	67%(6)	0%(<5)	100%(<5)
Male	100%(12)	92%(190)	90%(167)	100%(13)	88%(198)	91%(180)	81%(16)	75%(102)	28%(83)	84%(38)

Succ Ethn

Ethnicity	Summer '17	Fall '17	Spring '18	Summer '18	Fall '18	Spring '19	Summer '19	Fall '19	Spring '20	Fall '20
Asian		100%(14)	89%(19)	100%(<5)	100%(11)	89%(9)	100%(<5)	0%(<5)	0%(<5)	
Black or African A..	100%(<5)	82%(50)	83%(35)	100%(<5)	79%(29)	80%(30)	67%(<5)	50%(10)	13%(16)	100%(<5)
Latinx	100%(6)	94%(115)	94%(108)	100%(7)	91%(160)	93%(123)	89%(9)	79%(86)	32%(59)	83%(35)
Two or More Races	100%(<5)	88%(8)	0%(<5)		0%(<5)					
Unknown/Non-Re..						89%(9)		50%(<5)	0%(<5)	100%(<5)
White	100%(<5)	100%(<5)	100%(5)		100%(8)	100%(16)	67%(<5)	100%(5)	40%(5)	

Succ Age

Age Group	Summer '17	Fall '17	Spring '18	Summer '18	Fall '18	Spring '19	Summer '19	Fall '19	Spring '20	Fall '20
Under 18		60%(5)	0%(<5)		100%(9)			100%(<5)	0%(<5)	100%(<5)
18-19	100%(<5)	100%(23)	100%(13)	100%(<5)	92%(36)	94%(33)	100%(<5)	88%(33)	47%(17)	71%(7)
20-21	100%(<5)	95%(19)	94%(32)	100%(<5)	100%(18)	83%(12)		100%(9)	33%(<5)	80%(5)
22-24	100%(<5)	100%(23)	76%(21)		64%(14)	89%(18)	50%(<5)	17%(6)	33%(9)	
25-29	100%(<5)	77%(35)	86%(22)	100%(<5)	83%(41)	91%(32)		83%(18)	20%(20)	60%(5)
30-34	100%(<5)	95%(21)	88%(24)	100%(<5)	90%(29)	85%(27)	100%(<5)	27%(11)	29%(7)	100%(9)
35-39		92%(26)	95%(21)	100%(<5)	100%(20)	83%(18)	67%(<5)	89%(9)	20%(10)	100%(<5)
40-49	100%(<5)	90%(20)	94%(17)	100%(<5)	85%(33)	96%(26)	67%(<5)	63%(16)	25%(8)	83%(6)
50-64	100%(<5)	100%(18)	100%(17)	100%(<5)	92%(12)	100%(21)	100%(<5)	67%(<5)	14%(7)	100%(<5)
65 and over		0%(<5)		100%(<5)						

Succ Class

Class Load	Summer '17	Fall '17	Spring '18	Summer '18	Fall '18	Spring '19	Summer '19	Fall '19	Spring '20	Fall '20
Full-time		94%(105)	96%(99)		94%(116)	96%(138)		86%(44)	31%(35)	94%(16)
Part-time	100%(12)	87%(86)	83%(69)	100%(13)	82%(96)	76%(49)	82%(17)	66%(64)	24%(49)	78%(23)

The ACR program makes every effort to close performance gaps and address student equity by being a welcoming and inclusive environment regardless of one's age, race, gender, ethnicity and/or sexual orientation. Instructor(s) continue to participate in Professional Development that addresses ethnicity, gender, and sexual orientation awareness. These professional development workshops only help to continue the ensure that the ACR Program in welcoming for all. It is evident that the ACR Program lacks enrollment of females. It is encouraged that outreach programs market the program beyond men, but also women. The HVACR trade is not well known for women to be present in the trade; however, it is encouraged and welcomed regardless of one's gender.

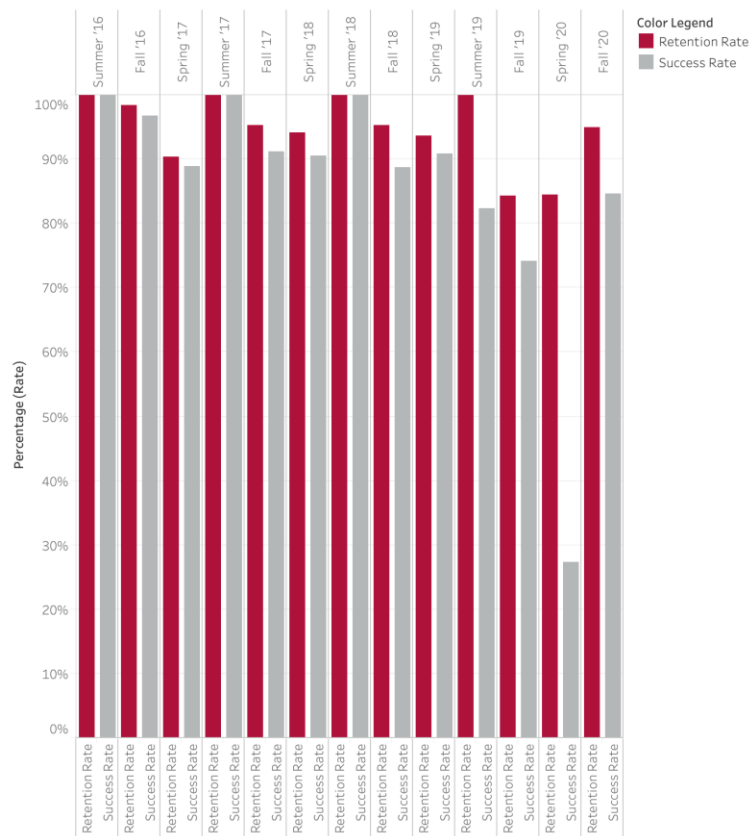
D) Retention rates:

With the addition of Distance Education components added to the ACR courses curriculum, and the continuation of the institutions outreach staff, the ACR Program would like to see a 10% rise in enrollment and maintain the same success rates of the past 4-years. The ACR Program needs more non-traditional and female students to see how or if the data changes.

Overall Retention Rate

Academic Year	
2016-17	82% (40206)
2017-18	83% (37852)
2018-19	83% (34987)
2019-20	79% (31253)
2020-21*	83% (13540)
Grand Total	82% (157838)

Succ Ret Bar



E) Comparison of success and retention rates in face-to-face classes with distance education classes:

Data not provided

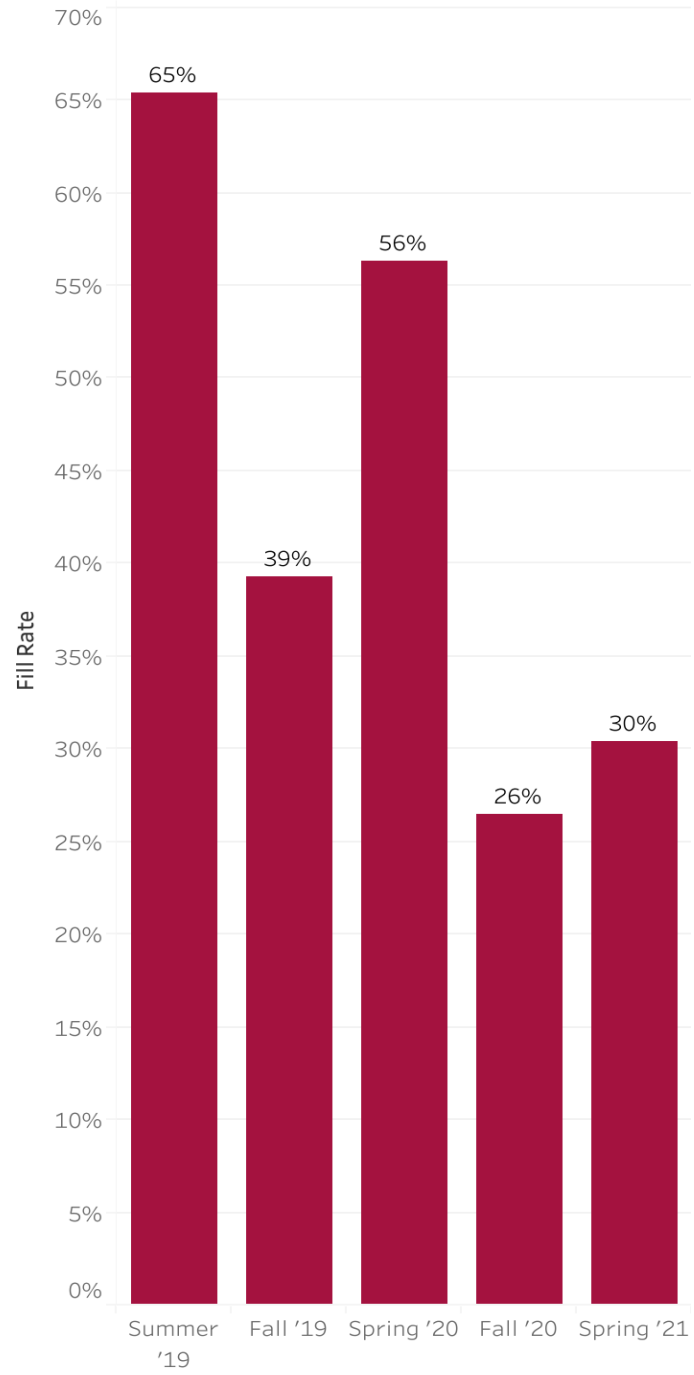
F) Enrollment statistics with section and seat counts and fill rates:

Data for the 2017 & 2018 is not available at this time. The 2019 & 2022 terms show a significant decline in enrollment and fill rates. This decline is associated to the COVID – 19 Pandemic that is consistent with the College Institution at Compton College and of the Institutions nationwide. A 10% increase in enrollment will give the ACR Program a significant boost with additional students per section. With faithful & honest help and assistance from the Outreach Office, the Outreach Office could help significantly boost enrollment to get back on track to previous enrollment and fill rates. It is also observed that with social distancing required by the CDC, the fill rate totals were not reduced to accommodate social distancing resulting in skewed and inaccurate data. With the fill rate based off of 20 seats, we cannot safely social distance in the space provided or the limited equipment in possession. The fill rate total of 20 seats was not adjusted until fall 2021. With 20 seats for fill rate, and with 10 to 12 seats allowed for proper social distancing, this fill rate allowance does not accurately provide an accurate picture of the true fill rates when social distancing is followed and practiced. The ACR Program has been offering lectures remote, and labs on campus to ensure that students can limit any exposures to the COVID – 19 virus yet maintain their enrollment in the program that follows success and completion.

Fill Rate by Course

Course Id	Summer '19	Fall '19	Spring '20	Fall '20	Spring '21
ACR-121		44%(23)	105%(21)	18%(7)	15%(<5)
ACR-123			50%(10)		50%(9)
ACR-125			70%(14)		
ACR-127		50%(13)		40%(8)	
ACR-130		37%(19)		35%(7)	
ACR-131		38%(18)		20%(<5)	
ACR-134		40%(14)		30%(6)	
ACR-136		27%(7)	90%(18)	25%(5)	
ACR-160			17%(8)		28%(5)
ACR-162	65%(17)				

Fill Rate by Term



G) Scheduling of courses (day vs. night, days offered, and sequence):

The ACR Program offers courses during the day and evenings. The evening courses saw the largest decline in enrollment and several courses offered in the evenings have been canceled in previous terms. The lack of enrollment, due to COVID – 19, has resulted in courses in the evenings being canceled. With faithful and honest help and assistance from the Outreach Office, the Outreach Office could help significantly boost enrollment to get back on track to previous enrollment and fill rates for not just the day course offerings, but the evening course offerings as well. The frequency of courses has been mapped and reviewed recently (Fall 2020), and addressed concerns mentioned by students. Minor adjustments were made, but with poor enrollment due to lack of outreach and recruitment. Following the course mapping has been difficult with lower-than-expected enrollment in past terms due to the COVID – 19 pandemic.

Enrollments by

Enrollments	Spring '17	Summer '17	Fall '17	Spring '18	Summer '18	Fall '18	Spring '19	Summer '19	Fall '19	Spring '20	Fall '20
Day	58%(34)	100%(12)	45%(38)	50%(39)	100%(13)	42%(39)	57%(44)	100%(17)	47%(27)	64%(37)	62%(12)
Evening	42%(44)		55%(54)	50%(53)		58%(59)	43%(50)		53%(29)	36%(22)	38%(11)

H) Completion Counts:

The ACR program has few students that pursue the degree. Rather most students that complete the ACR program are observed as obtaining new career skills or explore/pursue a career change. A student that is obtaining new career skills, or career change, they are usually those that earn a certificate, and not a degree. The ACR program awards many more certificates than degrees.

Award Table

	2015-16		2016-17		2017-18		2018-19		Grand Total
	Certific..	Degrees	Certific..	Degrees	Certific..	Degrees	Certific..	Degrees	
Air Conditioning & Refrig.	74	< 5	81	< 5	31	< 5	48	< 5	241

I) Additional data compiled by faculty:

N/A

J) Additional Related Recommendations:

Additional help with Outreach and Recruitment is warranted. With the pandemic, and these trying times, new and creative outreach techniques need to be pioneered in order to boost enrollment to reach the 2024 initiative goal. Without outreach to new students, enrollment with unlikely rise making the 2024 goal difficult to achieve.

Curriculum:

Review and discuss the curriculum work done in the program during the past four years, including the following:

A) Curriculum course review timeline which ensures all courses are reviewed at least once every 6 years:

ACR courses reviewed every 2 years.

ACR 95: 6/2021

ACR 99: 6/2021

ACR 121: 9/2020

ACR 123: 9/2020

ACR 125: 9/2020

ACR 127: 9/2020

ACR 130: 9/2020

ACR 131: 9/2020

ACR 134: 9/2020

ACR 136: 9/2020

ACR 160: 9/2020

ACR 161: 9/2020

ACR 162: 9/2020

ACR 95 & 99 reviewed to comply with new standards. DE component added/addressed & hours/units reviewed.

ACR: 121, 123, 125, 127, 130, 131, 134, 136, 160, 161, & 162 was reviewed, and DE component added. Fixed noted errors or missing information in the COR building tree, added new edition texts, and ensured accuracy of content.

B) Explain any course additions to current course offerings.

All course editions are made to keep up with industry trends and with the advice of the Advisory Committee and HVAC Collaborative. Industry trends are changing faster than we can keep up with.

New edition texts were addressed since previous texts were out of date.

DE components added to offer and provide a safe teachable modality during the COVID – 19 pandemic.

C) Course deletions and inactivations from current course offerings:

No deletions or inactivations have been made. At this time courses offered align with industry needs; However, there is a need for an industry expert to teach ACR 160, 161, & 162 as the COR is written. These industry experts are difficult to obtain as they typically are paid well to remain in the field and formal instruction would not justify a cut in their compensation.

D) Courses and number of sections offered in distance education. (Distance education includes hybrid courses.)

The most recent review of the COR's provided a DE component to the following:

ACR – 121, 123, 125, 127, 130, 131, 134, 136, 160, 161, & 162 DE component added

ACR 95 & 99 Emergency Only DE component added/addressed as this is technically a remote/distance course.

E) Courses, degrees, and/or certificates are meeting students' transfer or career training needs:

1. Have all courses that are required for your program's degrees and certificates been offered during the last two year?

Yes

If not, has the program established a course offering cycle?

2. Are there any concerns regarding program courses and their articulation?

No

3. How many students earn degrees and/or certificates in your program?

- Degrees and Certificates in the ACR Program show improvement. 2019 – 2020 Data was not available.

Award Table

	2017-18		2018-19		Grand Total
	Certific..	Degrees	Certific..	Degrees	
Air Conditioning & Refrig.	31	< 5	48	< 5	82

4. Do students take licensure exams? If so, what is the pass rate?

HVAC/R has no licensing exam for the industry. Instead, students are prepared and encouraged to take the EPA 608, which is needed to be employed in the HVAC/R Trade.

EPA 608, 71% successful pass rate. Although more students should have passing results, all students are encouraged to take the exam regardless of their knowledge.

Students can also take the EPA 609 which is the automotive certificate. EPA 609 has not been a desired certificate as most recent students have had little interest in automotive Air Conditioning.

EPA Section 608 Air Conditioning & Refrigeration										
Last Name	First Name	Exam Name	Test Date	Core	Core	Type I	Type II	Type III	Certificate #	
Bedoy	Antonio	EPA Section 608 J40	May 08, 2019	100%	Pass	88%	96%	84%	977918082830	
Franco	Alvaro	EPA Section 608 I39	May 08, 2019	100%	Pass	100%	96%	96%	1012844082830	
Vargas	Angela	EPA Section 608 I39	May 08, 2019	100%	Pass	92%	96%	96%	977911082830	
Padilla	Joshua	EPA Section 608 J40	May 08, 2019	100%	Pass	92%	92%	88%	977915082830	
Sanchez	Margarita	EPA Section 608 J40	May 08, 2019	100%	Pass	92%	100%	96%	977934082830	
Funes	Mauricio	EPA Section 608 B32	Dec 07, 2021	100%	Pass	100%	100%	100%	1159810082870	
Evans	Dwayne	EPA Section 608 I39	May 08, 2019	96%	Pass	92%	96%	96%	1012844082830	
George	Gregory	EPA Section 608 I39	May 08, 2019	96%	Pass	100%	100%	96%	987841082830	
Leblue	James	EPA Section 608 G37	May 09, 2019	96%	Pass	92%	84%	0%	1012855082830	
Lubliner	Maxwell	EPA Section 608 A31	Dec 03, 2019	96%	Pass	96%	92%	92%	1045011082860	
FUNEZ	CESAR	EPA Section 608 J40	Aug 29, 2020	96%	Pass	96%	84%	100%	1079563082810	
Rawles	Antonio	EPA Section 608 G37	Dec 07, 2021	96%	Pass	100%	100%	100%	1159805082870	
MURCIO	JOSE	EPA Section 608 G37	Apr 03, 2019	92%	Pass	92%	84%	64%	1005112082810	
Funez	Bryant	EPA Section 608 C33	May 08, 2019	92%	Pass	64%	68%	24%	1012847082830	
Coyazo	Luis	EPA Section 608 I39	May 08, 2019	92%	Pass	88%	80%	80%	977916082830	
Mojica	Juan	EPA Section 608 D34	May 09, 2019	92%	Pass	84%	56%	28%	1012857082830	
Rivera	Juan	EPA Section 608 J40	May 16, 2019	92%	Pass	88%	100%	88%	1014798082830	
Juarez	Hugo	EPA Section 608 J40	May 29, 2019	92%	Pass	0%	0%	88%	977912082830	
Medina	Francisco	EPA Section 608 C33	Dec 08, 2020	92%	Pass	84%	88%	80%	109324082870	
Chacon	Oscar	EPA Section 608 J40	May 08, 2019	88%	Pass	84%	96%	92%	977920082830	
Williams	Da'ron	EPA Section 608 J40	May 08, 2019	88%	Pass	84%	96%	92%	977917082830	
Araujo	Jesus	EPA Section 608 F36	May 09, 2019	88%	Pass	0%	0%	0%	987851082830	
Cabello	Jose	EPA Section 608 A31	May 16, 2019	88%	Pass	64%	44%	48%	977910082830	
Estrada	Adrian	EPA Section 608 G37	Jun 03, 2019	88%	Pass	92%	88%	84%	1012852082830	
PADILLA	JOSE	EPA Section 608 J40	Apr 03, 2019	84%	Pass	92%	72%	72%	1005113082810	
Salcedo	Daniel	EPA Section 608 H38	May 08, 2019	84%	Pass	64%	32%	0%	977940082830	
Taheri	Alreza	EPA Section 608 C33	May 09, 2019	84%	Pass	72%	84%	44%	1012850082830	
Zelaya	Max	EPA Section 608 G37	May 09, 2019	84%	Pass	64%	0%	72%	977924082830	
Cabrera	Pierre	EPA Section 608 D34	May 30, 2019	84%	Pass	92%	0%	0%	977913082830	
Thomas	Lamar	EPA Section 608 I39	May 08, 2019	80%	Pass	92%	92%	88%	1012845082830	
Martinez	Pedro	EPA Section 608 F36	May 08, 2019	80%	Pass	84%	68%	88%	977928082830	
Gabriel	Ricky	EPA Section 608 G37	May 09, 2019	80%	Pass	60%	92%	44%	977925082830	
Perez	Ruben	EPA Section 608 E35	Dec 07, 2021	80%	Pass	84%	76%	64%	1159806082870	
Ansari	Jehan	EPA Section 608 A31	Dec 07, 2021	80%	Pass	92%	100%	88%	1159808082870	
GONZALEZ	DAVID	EPA Section 608 D34	Apr 03, 2019	76%	Pass	88%	80%	84%	1005110082810	
ESQUIVIAS	ELLIOT	EPA Section 608 H38	Apr 03, 2019	76%	Pass	84%	72%	64%	1005114082810	
Zapata	Erick	EPA Section 608 H38	May 08, 2019	76%	Pass	72%	20%	0%	1012853082830	
Brown	Rodrequis	EPA Section 608 G37	May 09, 2019	76%	Pass	64%	88%	76%	1012849082830	
Ceballos	Amalia	EPA Section 608 A31	Dec 08, 2020	76%	Pass	76%	88%	92%	1093212082870	
OWENS	BRYAN	EPA Section 608 E35	Apr 03, 2019	72%	Pass	72%	64%	56%	1005109082810	
Adame	Diego	EPA Section 608 F36	May 08, 2019	72%	Pass	88%	72%	88%	977909082830	
DOVE	JASON	EPA Section 608 E35	Apr 04, 2020	72%	Pass	80%	84%	92%	1059342082810	
DE LEON OROZCO	VICTOR	EPA Section 608 E35	Nov 14, 2020	72%	Pass	80%	80%	80%	1090421082810	
Jauregui	Hadalberto	EPA Section 608 C33	Dec 07, 2021	72%	Pass	76%	76%	64%	1093211082870	
Araujo	Jesus	EPA Section 608 G37	May 08, 2019	68%	Failed	84%	84%	88%	987851082830	
Juarez	Hugo	EPA Section 608 B32	May 08, 2019	68%	Failed	88%	76%	64%	977912082830	
Leblue	James	EPA Section 608 B32	May 08, 2019	68%	Failed	64%	64%	36%	1012855082830	
Juarez	Hugo	EPA Section 608 E35	May 15, 2019	68%	Failed	0%	0%	60%	977912082830	
Jauregui	Hadalberto	EPA Section 608 B32	Dec 08, 2020	68%	Failed	40%	72%	52%	1093211082870	
Torres	Ivan	EPA Section 608 H38	Dec 07, 2021	68%	Failed	64%	48%	68%	1159807082870	
Gabriel	Ricky	EPA Section 608 F36	May 08, 2019	64%	Failed	56%	0%	0%	977925082830	
DOVE	JASON	EPA Section 608 G37	Feb 29, 2020	64%	Failed	76%	36%	44%	1059342082810	
Harvey	Aaron	EPA Section 608 B32	Dec 07, 2021	64%	Failed	60%	80%	72%	1159811082870	
Wilson	Sagai	EPA Section 608 H38	Dec 07, 2021	64%	Failed	72%	88%	76%	1159812082870	
Brown	Rodrequis	EPA Section 608 A31	May 08, 2019	60%	Failed	60%	56%	48%	1012849082830	
Smith	Diwaine	EPA Section 608 C33	May 08, 2019	60%	Failed	32%	56%	44%	1012867082830	
DOVE	JASON	EPA Section 608 J40	Mar 21, 2020	60%	Failed	64%	64%	60%	1059342082810	
Paez	Jorge	EPA Section 608 B32	Mar 29, 2019	56%	Failed	52%	56%	52%	1003245082830	
Cabrera	Pierre	EPA Section 608 H38	May 29, 2019	56%	Failed	64%	84%	80%	977913082830	
Hernandez	Victor	EPA Section 608 D34	Dec 07, 2021	56%	Failed	76%	52%	84%	1159814082870	
Cabrera	Pierre	EPA Section 608 E35	May 08, 2019	52%	Failed	68%	44%	12%	977913082830	
Estrada	Adrian	EPA Section 608 E35	May 08, 2019	52%	Failed	52%	40%	16%	1012852082830	

Total Exams	62
Total 'Passed' Exams	44
Total 'Failed' Exams	18
Total 'Pass' Rate Percentage	71.0%

If a student puts in the effort to learn the material in lectures and labs, the certificates, degrees, and EPA certification exams will be attainable. The problem is that the students want all answers given to them instead of finding the answers themselves. Most students have to be taught the process of learning for themselves.

These are the expected and current pass rates for the EPA exams. EPA 608 which is HVAC certification, has an anticipated 80% pass rate. This 80% benchmark is attainable, but the student needs to put an honorable effort in to obtain a passing exam score. It is often observed that many students do not study enough prior to taking the exam.

List any related recommendations:

After reviewing nearly all courses, and SLO's, since instructor Todd Kler secured employment here at Compton College, it has been observed that there is a lot of course subject/material overlap, along with a heavy subject around Direct Digital Control (DDC).

Unfortunately, most institutions do NOT spend as much time covering DDC (three courses worth) as the current SLO's outline in 131, 160, & 161, and Compton does NOT have a lab to satisfy the SLO's & COR's on site as written.

Most institutions, like Brownson, Mt. SAC, & LA Trade Tech, do NOT spend time covering DDC in so many "separate" courses. DDC is a very specific career in HVACR, and typically requires a specific instructor & lab to successfully teach it. The institutions that cover DDC typically have a DDC expert teach said course.

With so much overlap in 160, 161, & 131 in all or a mixture there of that these classes could likely be condensed down to 1 class alone, and NOT 3 separate classes as they are currently published. This could expedite students certificate program completion. The institution has approved these classes as is as many of these courses were adopted from El Camino College. Now that Compton College has its own accreditation, it might be time to make said adjustment/changes to the program to make it our own, and perfect it to satisfy the needs and caliber of our students. This is a considerable undertaking for the only one full-time instructor to accomplish solo.

ACR – 121/123/125/127/134 are outlined and follow what most other veteran technicians & Instructors would expect to see from the provided SLO's & course descriptions. Where 130 & 136 could be one course alone (due to overlap), and 131/160/161 (due to overlap) could be one class/course on its own and maybe require a special DDC expert to teach said course.

Note that 162 is a course that needs to be considered for removal from the program as this is a senior level class, and Compton College does NOT have the technology, equipment, qualified personnel, or lab to instruct it. Allow us to use a Brownson Technical School in Anaheim comparison to Compton's curriculum:

- 201 Basic Refrigeration (Compton's ACR 121 equivalent)
- 202 Electrical theory & applications (Compton's equivalent of ACR 130 & 136) note: we could combine 130 & 136 together maybe?
- 301 Heating & Heating Controls (Compton's equivalent of ACR 127)
- 302 Commercial Refrigeration (Compton's equivalent of ACR 123)
- 303 Domestic & Commercial HVAC application(s) (Compton's equivalent is parts/some of ACR 125)
- 311 Home performance (Compton's equivalent is parts/some of ACR 125)
- 203 NATE, EPA, & customer service (Compton's equivalent ACR 134)
- 321 Direct Digital Control [DDC] (Compton's equivalent of a combination of ACR 131, 160, 161)

Note: one class can likely cover all of ACR 131, 160, & 161.

Brownson Technical School does have the ability to teach what our 162 class is; however, they do not offer it in their curriculum as they are still in workings with state department for approvals. They have spent nearly 1 million dollars to make the required equipment and train the appropriate personnel to teach said course once approved by the state department.

Assessment and Student and Program Learning Outcomes (SLOs & PLOs):

A) Alignment grid, which shows how course, program, and institutional learning outcomes are aligned.

Several requests for the most recent SLO/PLO grids have been requested, but have not been supplied.

B) Provide a timeline for course and program level SLO assessments.

SLO's are now assessed after every term that the course is instructed.

Name	Description	Type	Terms
ACR121 Default SLO Assessment	ACR121 Default SLO Assessment	Course-ending review of overall student achievement	<ul style="list-style-type: none"> Spring 21 Fall 21 Spring 22 Fall 22 Spring 23 Fall 23 Spring 24 Fall 24
ACR123 Default SLO Assessment	ACR123 Default SLO Assessment	Course-ending review of overall student achievement	<ul style="list-style-type: none"> Spring 21 Spring 22 Fall 22 Spring 23 Fall 23 Spring 24 Fall 24
ACR134 Default SLO Assessment	ACR134 Default SLO Assessment	Course-ending review of overall student achievement	<ul style="list-style-type: none"> Fall 21 Spring 22 Fall 22 Spring 23 Fall 23 Spring 24 Fall 24
ACR136 Default SLO Assessment	ACR136 Default SLO Assessment	Course-ending review of overall student achievement	<ul style="list-style-type: none"> Fall 21 Spring 22 Fall 22 Spring 23 Fall 23 Spring 24 Fall 24
ACR160 Default SLO Assessment	ACR160 Default SLO Assessment	Course-ending review of overall student achievement	<ul style="list-style-type: none"> Spring 21
ACR161 Default SLO Assessment	ACR161 Default SLO Assessment	Course-ending review of overall student achievement	<ul style="list-style-type: none"> Fall 21 Spring 22 Fall 22 Spring 23 Fall 23 Spring 24 Fall 24

C) Percent of course and program SLO statements that have been assessed:

All SLO's in the ACR program have been assessed at a value of 100%.

The screenshot shows the Compton College LMS interface. At the top left is the Compton College logo. The user is logged in as Todd Kler as Faculty in the Air Conditioning & Refrigeration program, with Proxy Enabled. The interface includes navigation links for Courses, Outcomes & Assessments, and Results Explorer. Under the 'Assessments' tab, there are filters for SLOs, PLO Classes for Program, and ILOs. The 'Type' filter is set to 'Course', 'Include Inactive Outcomes' is 'No', 'Include Inactive Courses' is 'No', and 'Term' is 'Fall 21'. Below the filters, a summary table shows:

Unmapped SLOs	SLOs not included in any Assessment Rubric
18 of 18 SLO	All Completed SLO

At the bottom of the page, the text 'Air Conditioning & Refrigeration' is visible.

D) SLO and PLO assessment results over the past four years and describe how those results led to improved student learning. Analyze and describe those changes:

The target for success is 70% the minimum score for a letter grade of "C" for all assessments. The target for success has been met the past four years, and teaching strategies are constantly reviewed for improvement for student success. It has been observed that students tend to do best on assessments when they work in groups and/or teams. These groups and teams help support their learning.

For example, on ACR 121 assessment 2. Students were given assessment 2 the first time as a pre-assessment or practice, then they were given the assessment upon their practice. Before and after both the pre-assessment and assessment the students met in groups to discuss the assessment. Their scores showed improvement.

Pre-Assessment Data:

Pre-Assessment – 4 students took the assessment of brazing copper. Students could miss (poor braze) 3 joints of the 10 joints and pass the brazing assessment.

Pre-assessment: 2 students passed 2 students failed -- 50% passed pretest.

Assessment Data:

Assessment Grad – 4 students passed 0 students failed -- 100% passed test after review.

E) Description of improvement of SLO process and engagement in dialogue about assessment results:

The assessment process helps students learn the delivered content, and to help instructors improve their teaching strategies to improve student success.

SLOs have been reviewed upon transitioning to eLumen from Nuventive. This change provided the opportunity to ensure SLOs are accurate and proper. During this review, minor changes were made to grammar, spelling, and language. This helped to make many of the SLOs clearer and more concise.

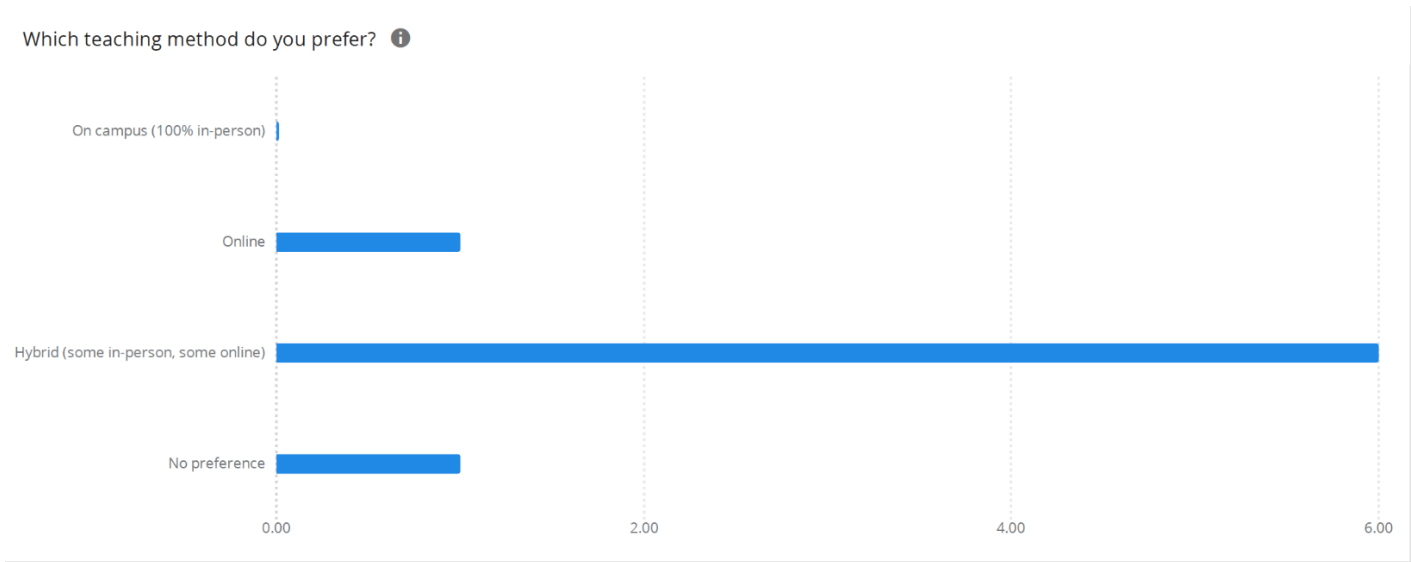
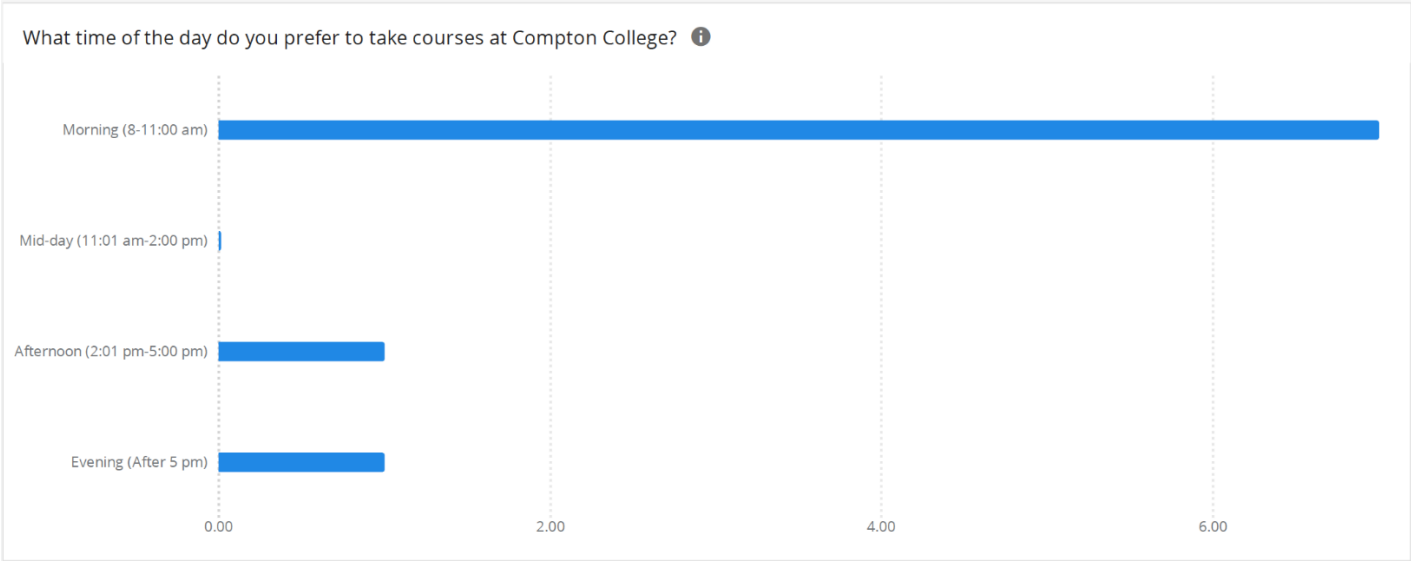
It remains consistent that most students tend to do best on assessments when they work in groups and/or teams. These groups and teams help support their learning. The target for success will remain at 70% minimum score for a letter grade of "C" for all assessments. The target for success has been met the past four years, and teaching strategies are constantly reviewed for improvement for student success.

F) List any related recommendations.

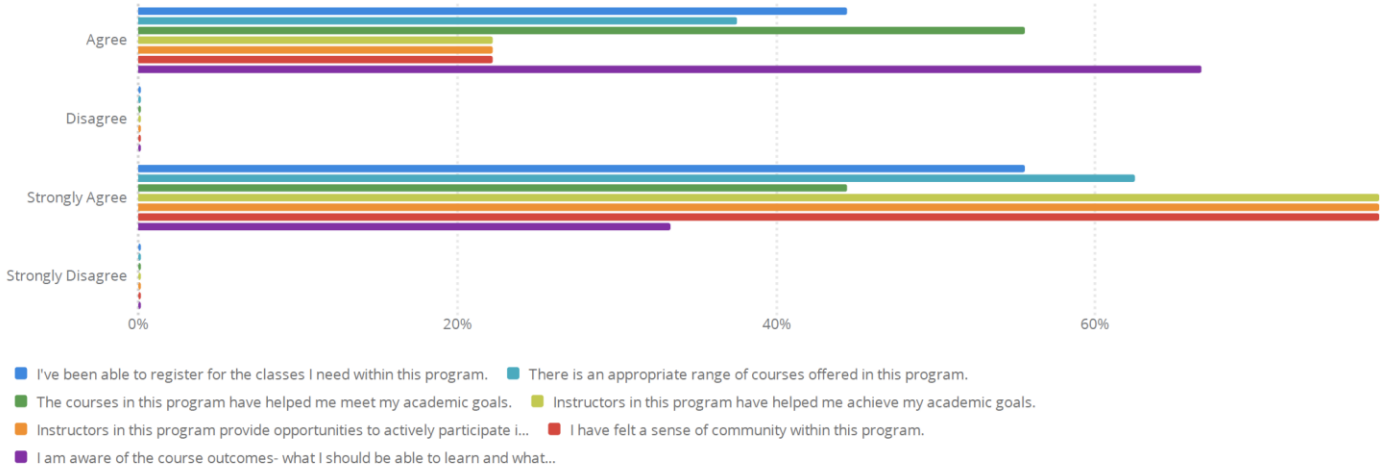
None at this time

Analysis of Student Feedback:

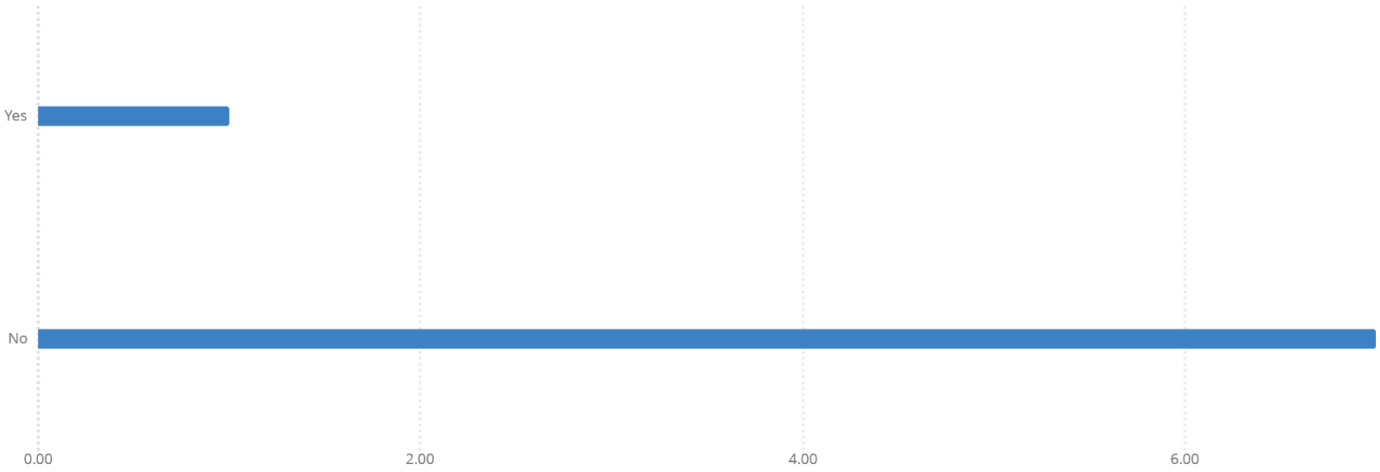
Copy of feedback reports generated by Institutional Research and Planning:



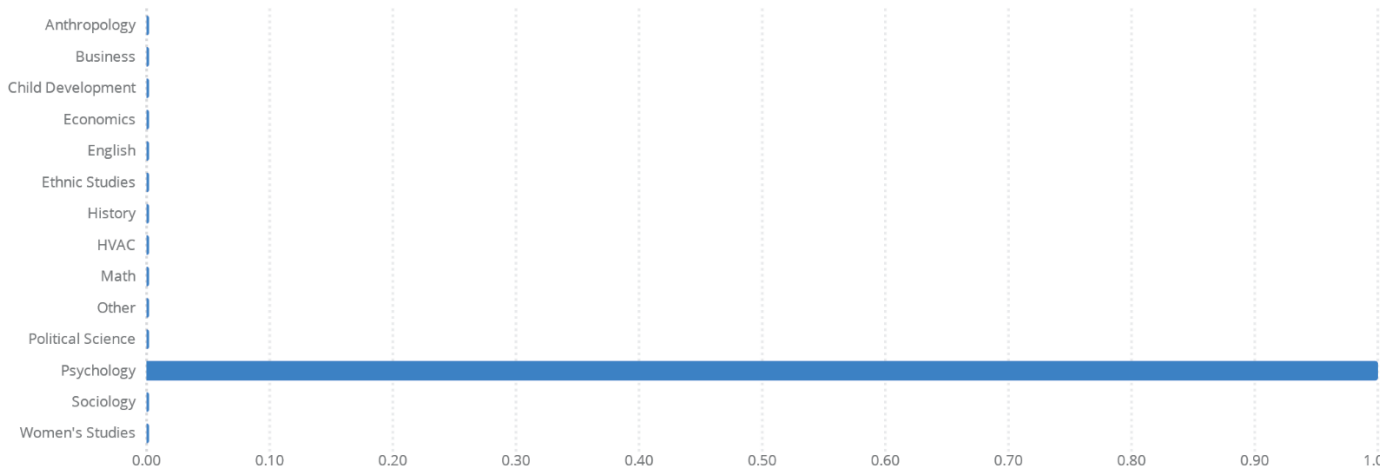
Please rate how much you agree or disagree with the following statements about the HVAC program: ⓘ



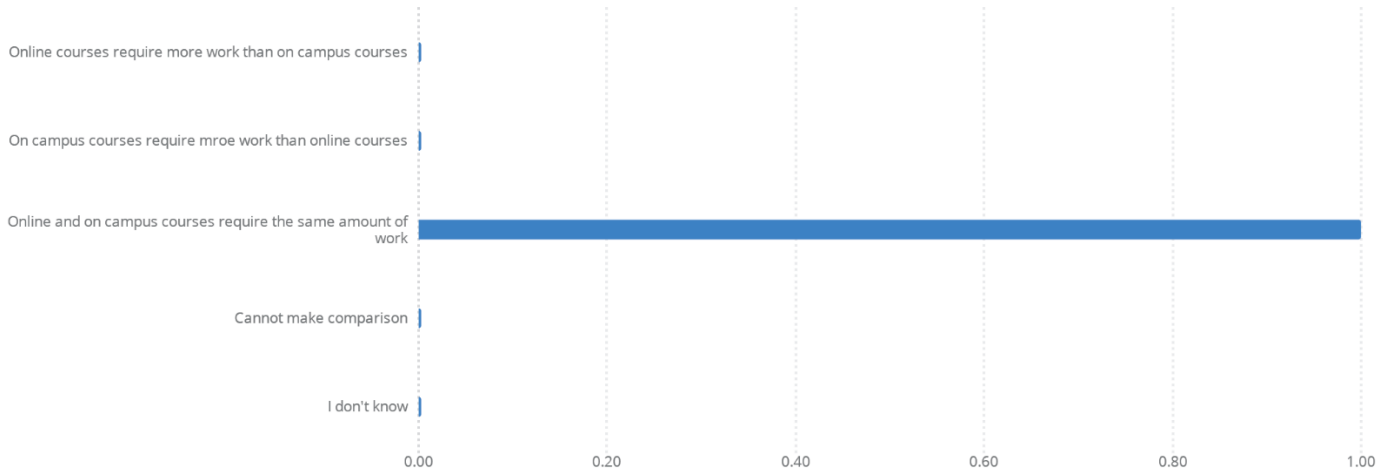
Have you enrolled in an online course before (before COVID-19)? ⓘ



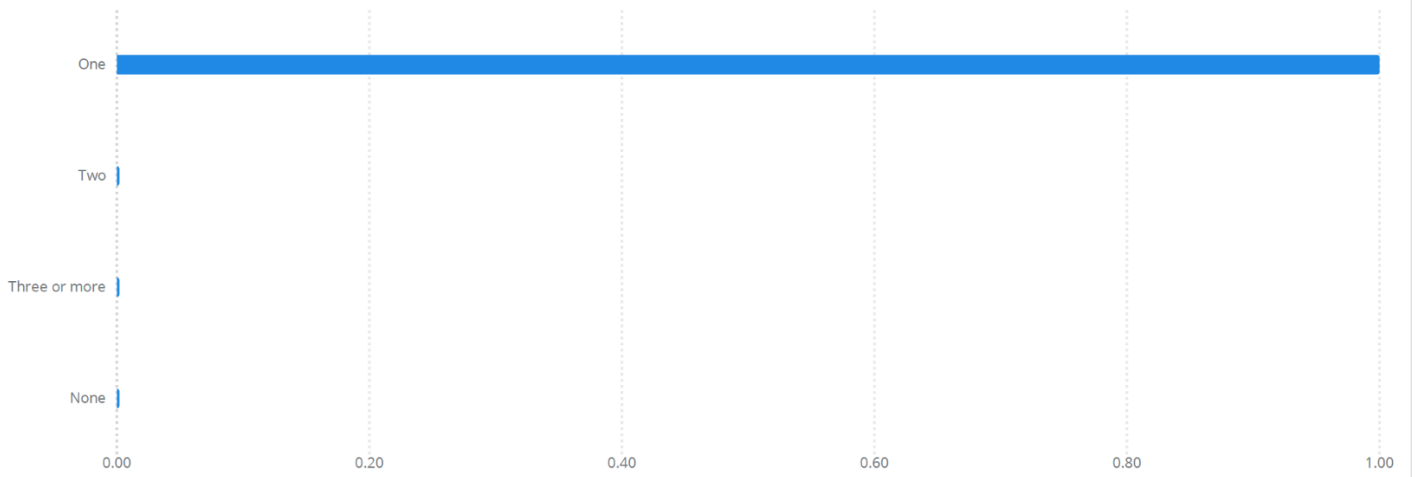
From the list below, indicate in which disciplines you are currently taking or have completed an online course (before COVID-19): ⓘ



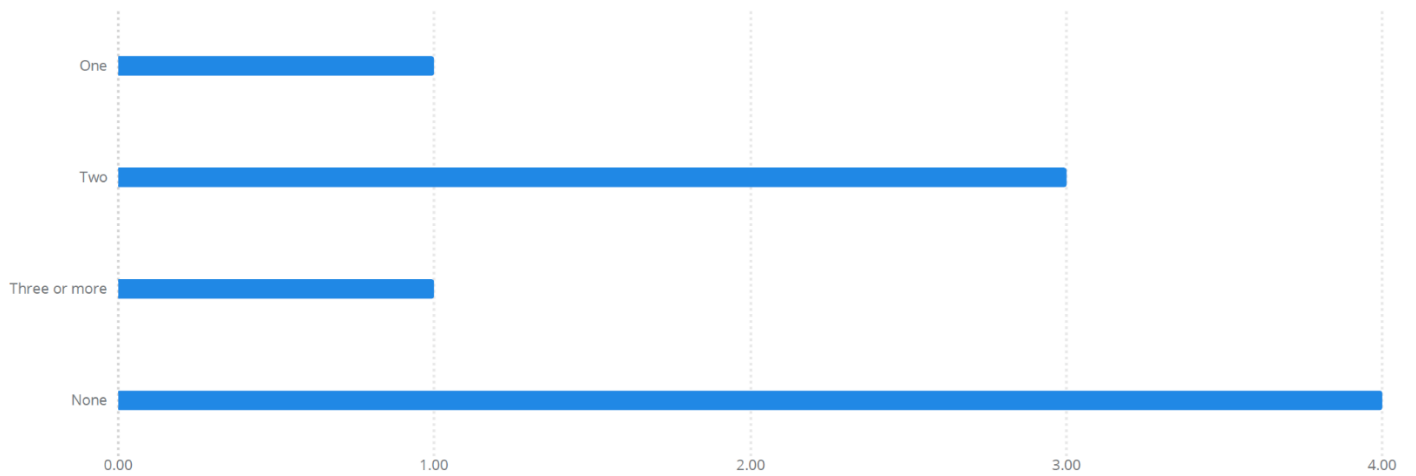
If you have completed online courses in HVAC, compare the workload of these courses to on-campus courses in the same discipline: **i**



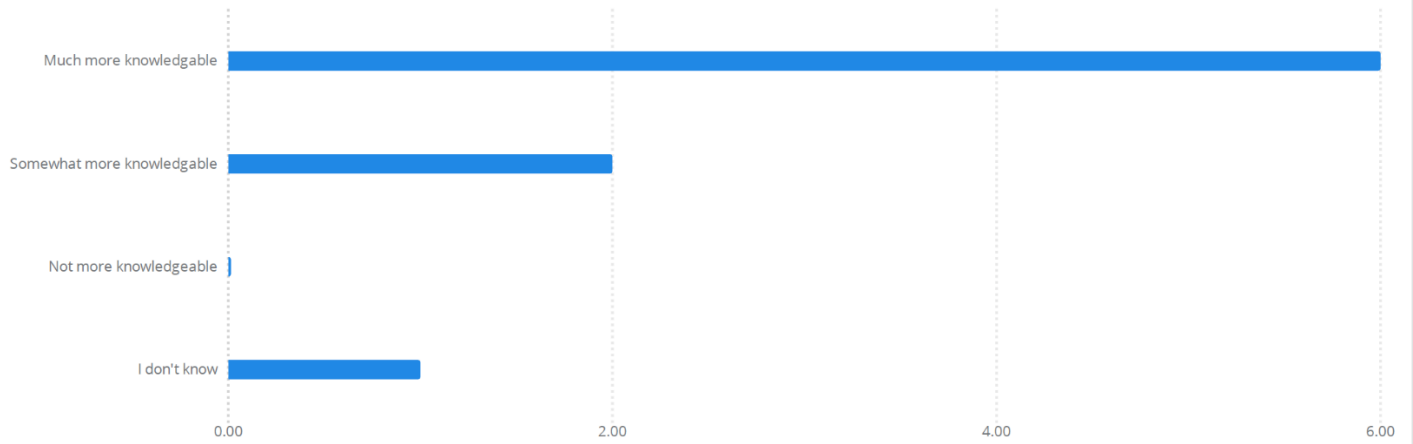
How many online courses in HVACR have you completed (do not include courses that would have been in person except for COVID-19)? **i**



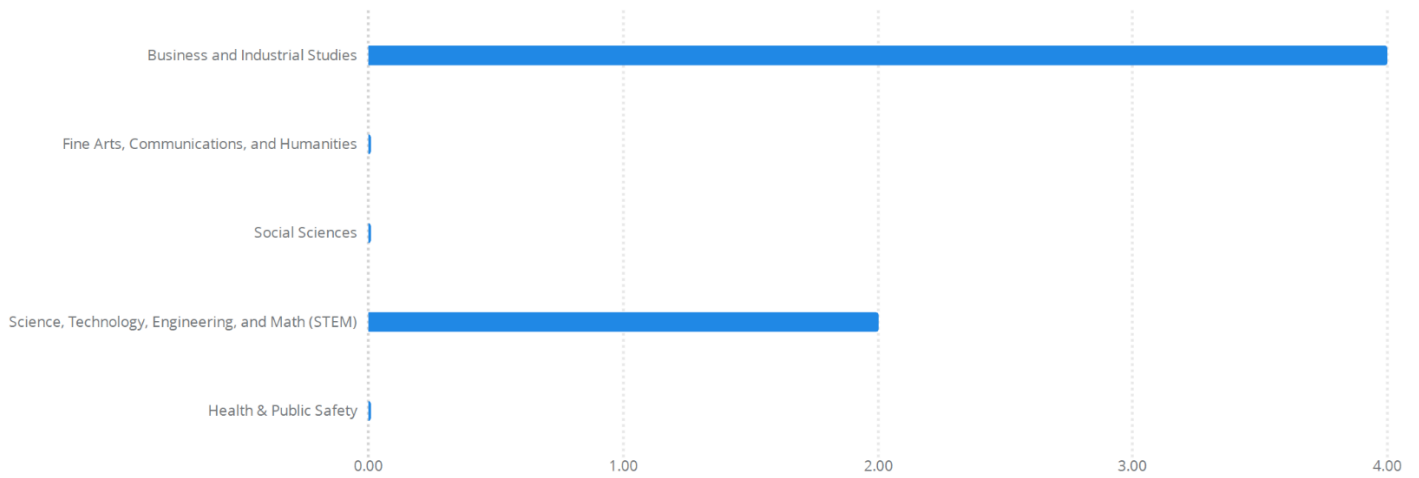
How many on campus courses in HVACR have you completed (include courses that would have been in person except for COVID-19)? **i**



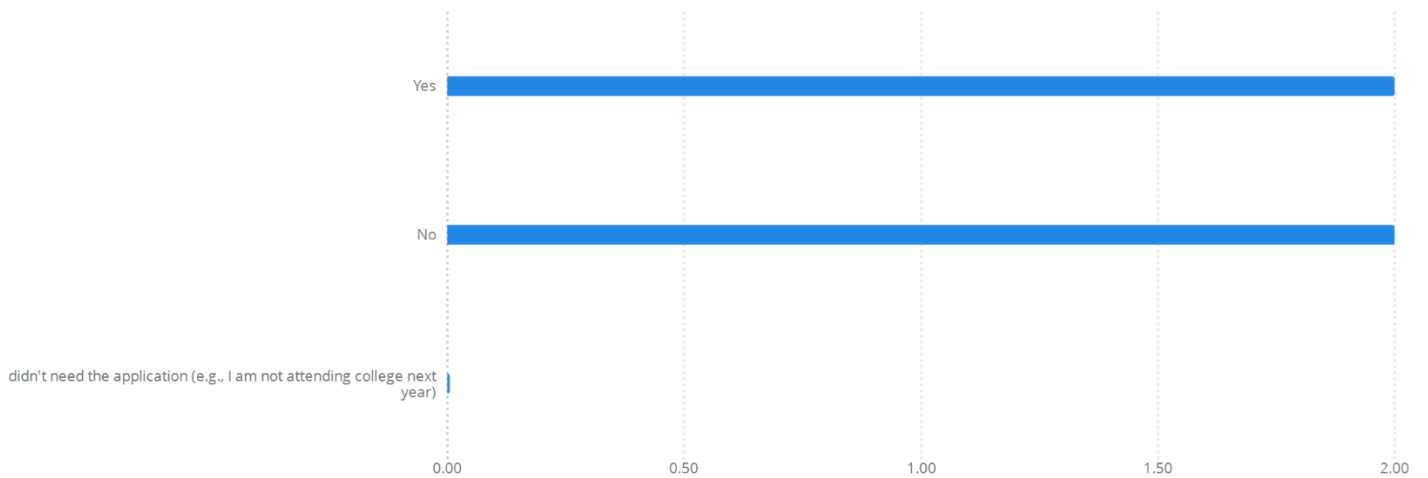
Using the HVAC course(s) that you are currently enrolled in as your measure, how knowledgeable are you about the subject than before you took the class: **i**



Do you know what Guided Pathway Division you belong to? **i**



Did you complete the Free Application for Federal Student Aid (FAFSA) for next year (2021-2022)? **i**



A) Describe the results of the student survey in each of the following areas:

i. Student Support

The data that has been collected indicates that most students agree that there is enough student support to meet their needs. Approximately 45% of students reported they “agree” they have appropriate support in registering for classes, and Approximately 55% of students reported that they “Strongly Agree” they have support services with registering for classes. We encourage the students in every course to utilize said services throughout the term.

ii. Curriculum

Student survey shows that students think there is an appropriate range offering to meet their academic goals. Using new technologies to courses we can offer student(s) up to date and most current technologies within the HVAC trade. The results of the student survey shows that approximately 38% of students reported they “agree” there is appropriate range of courses offered in the program, and Approximately 62% of students reported that they “Strongly Agree” there is appropriate range of courses offered in the program.

iii. Facilities, Equipment, and Technology

The main concern with facilities, equipment, and technology is lab space and proper power source for equipment. The power source is marginal and lab space is limited and shared with automotive and the SMOG referee making space for the lab areas inadequate. Lack of lab space means lack of equipment and new technology. It is hopeful that with program annual plans and other funding that equipment, facilities, and technology can be obtained to be a competitive program.

iv. Program Objectives

Students are enrolled in the ACR Program to learn air conditioning & refrigeration trade aspects and skills. The results of the student survey shows that student understand the dialogue of the course objectives and outcomes, something that has been addressed since the previous program review. The data collected illustrates that Approximately 65% of students reported they “agree” they have dialogue and understanding of the course objectives and outcomes, and Approximately 35% of students reported that they “Strongly Agree” they have dialogue and understanding of the course objectives and outcomes. When the students understand what outcomes are expected, they will understand what contributions the instructor values.

B) Discuss the implications of the survey results for the program:

The student surveys are an excellent tool to use to improve the ACR Program. Student input in their future is important and shouldn't be overlooked. Between the student surveys, and student comments during the term, it is observed that students want/need updated facilities, equipment, and technology. With the industry shift to energy efficiency, and the ever-changing technologies, it is important the ACR Program addresses these wants/needs of enrolled students & future students alike.

C) Discuss the results of other relevant surveys:

N/A

D)List any related recommendations:

The institution needs to value the students wants and needs to better the program through updates to facilities, equipment & technologies. An honest focus of student outreach needs to be addressed and implemented.

Facilities and Equipment:

A) Describe & Assessment of the existing program facilities and equipment:

The ACR Program started at Compton College in 2009. We've been located in a small corner of the automotive garage (ACRP). The small corner space that the ACR program located is also shared with the California SMOG Referee, makes space particularly limited, confined and power source to run equipment is limited. This limited space was cramped prior to COVID – 19 and now with social distancing mandates makes social distancing complicated.

I have had the pleasure to teach at many different HVACR programs throughout the State of California, and the facilities here at Compton College are limited, deprived, and much of the equipment is second hand or non-functional. Compton College cannot compete with any of the schools for students with the facilities & equipment that is present at Compton College's ACR program. If the goal is to attract students to the campus and increase enrollment, then updates must not simply be considered, but 'executed' in an effort to compete with other institutions.

B) Explanation of the immediate (1-2 years) needs related to facilities and equipment. Provide a cost estimate for each need and explain how it will help the program better meet its goals:

More space needed and updated power source to run equipment.

Brownson Technical School & ServPro (Rancho Cucamonga) were going to donate new equipment to Compton College, but we have no room for it. This is another lost opportunity because of lack of space and powersource just like noted in the previous Program Review when Mt. San Antonio College was going to donate equipment as well.

Updated facilities: \$500,000.00 to \$750,000.00:

Designing the infrastructure remodel to include additional square footage that is not shared with the smog referee. This square footage would allow the students to work safely on equipment. In addition, an updated power source is required to run equipment in various locations of the lab. This goal that supports offering excellent programs that lead to degrees and certificates in the HVACR field. *Note: this goal was listed and suggested in the previous program review. It has been verbally stated that this goal will not be pursued until 2024-2025. This might be too late and may hurt the ACR program enrolment.*

Power source upgrade: \$100,000.00:

An updated power source is required to run equipment in various locations of the lab if and when lab equipment(s) are acquired. This goal that supports offering excellent programs that lead to degrees and certificates in the HVACR field. *Note: this goal was listed and suggested in the previous program review*

Larger lab space: \$400,000.00:

Designing the infrastructure remodel to include additional square footage that is not shared with the smog referee. This square footage would allow the students to work safely on equipment. This goal that supports offering excellent programs that lead to degrees and certificates in the HVACR field. *Note: this goal was listed and suggested in the previous program review. It has been verbally stated that this goal will not be pursued until 2024-2025. This might be too late and may hurt the ACR program enrolment.*

Acquire additional Lab Equipment \$250,000.00:

Additional lab equipment is needed to replace the outdated, non-functional, 'limited' existing equipment. New equipment will provide students with necessary equipment that satisfies the CORs, SLOs and PLOs as published and the opportunity to practice course curriculum designed for student program and workforce success. This goal that supports offering excellent programs that lead to degrees and certificates in the HVACR field.

C) Explanation of the immediate (2-4+ years) needs related to facilities and equipment. Provide a cost estimate for each need and explain how it will help the program better meet its goals:

Updated facilities: \$500,000.00 to \$750,000.00:

Designing the infrastructure remodel to include additional square footage that is not shared with the smog referee. This square footage would allow the students to work safely on equipment. In addition, an updated power source is required to run equipment in various locations of the lab. This goal that supports offering excellent programs that lead to degrees and certificates in the HVACR field. *Note: this goal was listed and suggested in the previous program review. It has been verbally stated that this goal will not be pursued until 2024-2025. This might be too late and may hurt the ACR program enrolment.*

Power source upgrade: \$100,000.00:

An updated power source is required to run equipment in various locations of the lab if and when lab equipment(s) are acquired. This goal that supports offering excellent programs that lead to degrees and certificates in the HVACR field. *Note: this goal was listed and suggested in the previous program review.*

Larger lab space: \$400,000.00:

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D) List any related recommendations:

Updated facilities: \$500,000.00 to \$750,000.00:

Designing the infrastructure remodel to include additional square footage that is not shared with the smog referee. This square footage would allow the students to work safely on equipment. In addition, an updated power source is required to run equipment in various locations of the lab. This goal that supports offering excellent programs that lead to degrees and certificates in the HVACR field. *Note: this goal was listed and suggested in the previous program review. It has been verbally stated that this goal will not be pursued until 2024-2025. This might be too late and may hurt the ACR program enrolment.*

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Larger lab space: \$400,000.00:

Designing the infrastructure remodel to include additional square footage that is not shared with the smog referee. This square footage would allow the students to work safely on equipment. This goal that supports offering excellent programs that lead to degrees and certificates in the HVACR field. *Note: this goal was listed and suggested in the previous program review. It has been verbally stated that this goal will not be pursued until 2024-2025. This might be too late and may hurt the ACR program enrolment.*

Acquire additional Lab Equipment \$2500,000.00:

Additional lab equipment is needed to replace the outdated, non-functional, 'limited' existing equipment. New equipment will provide students with necessary equipment that satisfies the CORs, SLOs and PLOs as published and the opportunity to practice course curriculum designed for student program and workforce success. This goal that supports offering excellent programs that lead to degrees and certificates in the HVACR field.

Technology and Software:

A) Description and assessment of the adequacy and currency of the technology and software used by the program:

Technology is constantly being updated by the HVACR industry. Instructors need to take continuing education classes to keep up with new technologies. As more classes are taken and knowledge acquired, new equipment and technology need to be acquired to help instruct students. This is an ongoing process.

B) Explanation of the immediate (1-2 years) needs related to technology and software. Provide a cost estimate for each need and explain how it will help the program better meet its goals:

Acquire portable (on wheels) smart board that can be utilized in lab, and classroom.	Provide quality instructional technology for All HVACR courses as to assist in a teaching aid in classroom, and laboratory alike.	\$10,000	Support students through the use of technology	Offer up-to-date technology that is not currently available in the program but beneficial in support of PLOs & SLOs alike.
Acquire a centralized printer & copier for CTE department use	Copy center has proven and failed to provide printed documents on-time. When documents need to be printed same day, copy center cannot accommodate same day or last minute copies/printed documents.	\$4,000	Support the success of all students to meet their education and career goals. Positive impact as the printer/copier can be centralized and shared offering all students to have copies when needed without waiting for copy center to fulfill order requests.	Positive impact as the printer/copier can be centralized and shared offering all students to have copies when needed without waiting for copy center to fulfill order requests.
Acquire Virtual Reality Skill Mill (Interplay Learning) 3D training Software	Provide quality instructional technology for All HVACR courses as to assist in a teaching aid in classroom, and laboratory alike.	\$30,000	Support the success of all students to meet their education and career goals.	Offer up-to-date technology that is not currently available in the program but beneficial in support of PLOs & SLOs alike.
Acquire portable (on wheels) laptop cart for the classroom	Provide quality instructional technology for All HVACR courses as to assist in a teaching aid in classroom, and laboratory alike.	\$20,000	Support students through the use of technology	Offer access to computers to continue the use of HVACRedu.net LMS software that is currently in use, but no access to computer lab on campus for HVACR courses.

C) Explanation of the immediate (2-4+ years) needs related to technology and software. Provide a cost estimate for each need and explain how it will help the program better meet its goals:

Acquire additional Lab Equipment \$300,000.00:

Additional lab equipment is needed to replace the outdated, non-functional, 'limited' existing equipment. New equipment will provide students with necessary equipment that satisfies the CORs, SLOs and PLOs as published and the opportunity to practice course curriculum designed for student program and workforce success. This goal that supports offering excellent programs that lead to degrees and certificates in the HVACR field.

D) Related recommendations:

Acquire additional Lab Equipment \$300,000.00:

Additional lab equipment is needed to replace the outdated, non-functional, 'limited' existing equipment. New equipment will provide students with necessary equipment that satisfies the CORs, SLOs and PLOs as published and the opportunity to practice course curriculum designed for student program and workforce success. This goal that supports offering excellent programs that lead to degrees and certificates in the HVACR field.

Staffing:

A) Description of the program's current staffing, including faculty, administration, and classified staff:

Currently the ACR Program has 1 Full-time instructor. The ACR Program did have two adjunct instructors, but with the recent announcement of Phil Walls retirement, this leaves one full-time instructor and one part-time (adjunct) instructor. This recent retirement announcement leaves a void that needs to be filled.

The program has a great Dean with Dr. Flor that replaced the previous Dean Dr. Murray upon his retirement. He knows BISS Division, and his vision to improve the Division is on point. His strength is, that he listens to his faculty recommendations and acts accordingly to produce the best program that we can as a team.

With the HVAC Collaborative & Strong Workforce funding Dr. Flor is building a classified staff to improve the Career and Technical Education (CTE) programs.

B) Explanation and justification the program's staffing needs in the immediate (1-2 years) and long-term (2-4+ years). Provide cost estimates and explain how the positions will help the program better meet its goals:

The ACR Program resumes a need of the Full-time instructor for the day course offerings, 2 adjunct instructors for the night program (a replacement adjunct is in need since Phil Walls retirement), and a need to hire an adjunct instructor for noncredit (NC) courses which have not been offered since their adoption. NC courses shall drive & improve enrollment in the ACR Program.

Other programs like ACRP have a tool room attendant. There remains an ongoing need for a Part-time (during COVID), or a Full-time tool room attendant to help stock, inventory, and order tools, supplies, and maintain the space since M&O claims that custodial services are not their responsibility.

C) List any related recommendations:

Hire an adjunct instructor to teach noncredit (NC) courses. Estimate cost: \$100,000.00

Hire an adjunct instructor to replace the retired adjunct Phill Walls for evening course offerings. Preferably an expert in DDC & BAS to appropriately instruct the 160, 161, & 162 courses. Estimate cost: \$100,000.00

Hire Tool Room attendant to stock, inventory, and order tools, supplies, and equipment. They would maintain the Lab, Tool room & Classroom space since M&O claims that custodial services are not their responsibility. Estimate cost: \$50,000.00 to \$100,000.00

Future Direction and Vision:

A) Description of relevant changes within the academic field/industry. How will these changes impact the program in the next four years?:

HVAC power consumption in residential and commercial sectors continues to grow, and some energy productions decline. This calls for more energy efficient equipment, optimization, and retrofitting existing equipment.

“We expect domestic natural gas production to grow 2.7% to a record-high 96.0 Bcf/d in 2022 and to 97.6 Bcf/d in 2023. We forecast annual U.S. natural gas consumption will remain relatively unchanged in 2022 and increase slightly in 2023. Consumption increases in 2023 because natural gas is increasingly used in the industrial sector and is only slightly offset by a decline in natural gas consumed in the electric power sector as [more renewable electric power plants are installed](https://www.eia.gov).” (<https://www.eia.gov>)

Due to upward demand for energy and with the downward decline in certain fuel productions, we must shift to different energy sources (fuels) and commit to energy saving in the HVACR industry. This includes but is not limited to solar, whole house as a system and retro commissioning to get the most efficiency out of an HVAC system and/or building.

We continue to integrate trainers that promote the teachings of not just the trade, but the need for energy efficiencies amongst the industry.

B) Explain the direction and vision of the program and how you plan to achieve it:

The direction and vision of the ACR Program will continue to follow the Advisory Committee, HVAC Collaborative recommendations, and Industry trends /adjustments:

The ACR Program at Compton College belongs to the California Community College Strong Workforce Program. We are members of the Los Angeles County Regional Heating, Ventilation, and Air Conditioning (HVAC) Collaborative. Some recommendations of the HVAC Collaborative are:

1. Maximizing sustained industry engagement
2. Strengthening career pathways and programs of study
3. Expanding opportunities for work-based learning
4. Attending to the need for new Career Technical Education (CTE) faculty recruitment and professional development and externships for current faculty
5. Addressing the needs of business and industry in identified priority and emerging sectors
6. Supporting regional marketing, curriculum alignment, streamlined regional processes as well as regional labor market data collection and analysis for data-informed decision making.

It's important that Compton College continues to follow the recommendations of the HVAC Collaborative. We have to continue to pave our own way since the separation from El Camino College and being a participating member of the HVAC Collaborative will ensure we remain on track. Although the El Camino curriculum was maintained upon separation, we continue to develop the curriculum to our students, and Advisory Committee's needs.

C) List any related recommendations:

Listen to the Advisory Committee recommendations and continuing education for instructors. It should also be noted that there is observation that there needs to be more student outreach to help bring in additional enrollment. Student outreach support can boost the future direction and success of the ACR Program.

Prioritized Recommendations:

A) Provide a single, prioritized list of recommendations and needs for your program/department:

Recommendation Your best description of the recommendation	Rationale & Expected Outcome: How will this resource help you reach your goal for the next year? What activities will you complete and outcomes will you accomplish with this resource? How will this outcome help the college reach overarching goals?	Anticipated Cost	Primary Strategic Initiative Supporting Recommendation
Update/remodel HVACR facilities	Designing the infrastructure remodel to include additional square footage that is not shared with the smog referee. This square footage would allow the students to work safely on equipment. In addition, an updated power source is required to run equipment in various locations of the lab.	\$500,000	Program review goal that supports offering excellent programs that lead to degrees and certificates in the HVACR field.
Acquire Virtual Reality Skill Mill (Interplay Learning) 3D/2D training Software	Provide quality instructional technology for All HVACR courses as to assist in a teaching aid in classroom, and laboratory alike.	\$299 per student annually. <i>Example: 30 students annually, \$8970.00</i>	Support students through the use of technology
Acquire portable (on wheels) laptop cart for the classroom	Provide quality instructional technology for All HVACR courses as to assist in a teaching aid in classroom, and laboratory alike.	\$20,000	Support students through the use of technology
Acquire portable (on wheels) smart board that can be utilized in lab, and classroom.	Provide quality instructional technology for All HVACR courses as to assist in a teaching aid in classroom, and laboratory alike.	\$10,000	Support students through the use of technology
Acquire a centralized printer & copier for CTE department use	Copy center has proven and failed to provide printed documents on-time. When documents need to be printed same day, copy center cannot accommodate same day or last minute copies/printed documents.	\$4,000	Support the success of all students to meet their education and career goals.
Replace bulky & non-functional desks in classroom	A more reasonable and standard size desk/chairs in classroom will provide more space for all students in classroom. Current desks are too large for the classroom.	\$7,500	Improve enrollment, retention, and completion rates for our students.
Additional lab bench tables in laboratory	Additional lab bench tables in the lab are needed to accommodate the number of enrolled students providing every student with a proper work-station(s).	\$5,000	Improve enrollment, retention, and completion rates for our students.
Update existing equipment that is outdated and/or non-functional	Provide a safe and ideal learning environment by updating or repairing outdated or non-functional equipment.	\$250,000	Program review goal that supports offering excellent programs that lead to degrees and certificates in the HVACR field.
Update the tool crib	Provide a larger and more secure area for lab tools to be stored. Ideally this new tool crib would be located closer to the lab classroom for accessibility.	\$20,000	More accessible and available equipment will be beneficial for SLOs and the overall success of the HVACR program.
Hire an adjunct instructor for DDC and BAS courses	Provide quality instruction for DDC and BAS courses which require very specific training.	\$100,000	Emerging staff need that supports offering excellent programs that lead to degrees and certificates in the HVACR field.
Hire a part-time tool attendant	Provide students with proper tools for lab assignments, keep an inventory log and limit the loss of assets of the equipment/tools.	\$45,000	Program review goal that supports offering excellent programs that lead to degrees and certificates in the HVACR field.

B) Explanation why the list is prioritized in this way:

Much of the prioritization was prioritized withing the most recent Annual Plan. Much of this prioritization ensures that Goals, acquisition of technology, and other recommendation all lead to overall program and student success at Compton College.

CAREER AND TECHNICAL EDUCATION – SUPPLEMENTAL QUESTIONS

A) Provide a single, prioritized list of recommendations and needs for your CTE programs must conduct a full program review every 4 years. The full review includes answering these supplemental questions. Every two years (once between full reviews) these supplemental questions must be answered and submitted to Academic Affairs for posting on the College website.

Use labor market data, advisory committee input, institutional data, and the provided CTE 2-year Program Review data to respond to the following questions:

- 1) How strong is the occupational demand for the program? As you analyze demand over the past 5 years and projected demand for next 5 years, address state and local needs for the program.

Heating, Air Conditioning, and Refrigeration Mechanics and Installers

Note: The following data reflects the job market in the Compton College 7.5-mile service area.

Job Estimates - 2018: 1,455 (2% below national average in terms of job availability per area)
Percent Change in Number of Jobs from 2013-2018: +16.1% (National average: +21.7%)
Projected Change in Jobs from 2018-2022: +6.3% (National average: +7.9%)

Area Location Quotient: 0.98 (Numbers above 1.00 mean the occupation is more concentrated in the area compared to the nation. Numbers below 1.00 mean the occupation is less concentrated in the area.)

Top 10 Industries Employing Heating, Air Conditioning, and Refrigeration Mechanics and Installers (Compton College Service Area)

Industry	% of Occupation in Industry (2018)	% Change in Industry Jobs (2013-2018)
Plumbing, Heating, and Air Conditioning Contractors	57.7%	+25%
All Other Specialty Trade Contractors	6.4%	+8%
Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	4.1%	-17%
Site Preparation Contractors	2.8%	+8%
Residential Remodelers	1.7%	+39%
Local Government, Excluding Education and Hospitals	1.7%	+9%
Electrical Contractors and Other Wiring Installation Contractors	1.5%	0%
Other Personal and Household Goods Repair and Maintenance	1.2%	+20%
Finish Carpentry Contractors	0.9%	+8%

Elementary and Secondary Schools (Local Government)	0.9%	0%
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Note: The following data reflects the job market in California.

Job Estimates - 2018: 34,282 (28% below national average in terms of availability per state)
Percent Change in Number of Jobs from 2013-2018: +25.1% (National average: +21.7%)
Projected Change in Jobs from 2018-2022: +10.1% (National average: +7.9%)

State Location Quotient: 0.72 (Numbers above 1.00 mean the occupation is more concentrated in the state compared to the nation. Numbers below 1.00 mean the occupation is less concentrated in the state.)

Top 10 Industries Employing Heating, Air Conditioning, and Refrigeration Mechanics and Installers (California Statewide)

Industry	% of Occupation in Industry (2018)	% Change in Industry Jobs (2013-2018)
Plumbing, Heating, and Air Conditioning Contractors	57.6%	+35%
Residential Remodelers	3.1%	+40%
Electrical Contractors and Other Wiring Installation Contractors	2.5%	+4%
All Other Specialty Trade Contractors	2.3%	+8%
Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	1.7%	-11%
Site Preparation Contractors	1.6%	+2%
Other Personal and Household Good Repair and Maintenance	1.5%	+20%
Local Government, Excluding Education and Hospitals	1.4%	+15%
Painting and Wall Covering Contractors	1.4%	+2%
New Single-Family Housing Construction (except For-Sale Builders)	1.3%	+23%

Compton College’s 7.5-mile circumferential service area illustrates ten industries employing Heating, Air Conditioning, and Refrigeration Mechanics and Installers: (a) Plumbing, Heating, and Air Conditioning Contractors (b) All Other Specialty Contractors, (c) Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance (d) Site Preparation Contractors, (e) Residential Remodelers, (f) Local Government, Excluding Education and Hospitals, (g) Electrical Contractors and Other Wiring Installation Contractors, (h) Other Personal and Household Goods Repair and Maintenance , (i) Finish Carpentry Contractors , and (j) Elementary and Secondary Schools (Local Government).

Of these ten industry areas, four encompass the highest percentages of occupations in the industry: (a) Plumbing, Heating, and Air Conditioning Contractors 57.7% , (b) All Other Specialty Contractors 6.4%, (c) Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance 4.1%, and (d) Site Preparation Contractors 2.8%. Together, they make up more than 70% of occupations in the industry. As a result, these are the primary focal points analyzed in determining the occupational demand for our program.

For example, from 2013 to 2018 there was a 25% increase in Plumbing, Heating, and Air Conditioning Contractors, an 8% increase in All Other Specialty Contractors, a 17% decrease in Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance, and an 8% increase in Site Preparation Contractors. Overall, the change in primary industry jobs looks very favorable, with a combined 41% increase in employment for Heating, Air Conditioning, and Refrigeration Mechanics and Installers.

Compton College's service area displays a job estimate of 28% below the national average in terms of availability per state in 2018 for Heating, Air Conditioning, and Refrigeration Mechanics and Installers. However, the national average projected change in jobs from 2018 through 2022 shows an increase of 7.9%. Another positive insight is seen in California's projected job growth of 10.1% from 2018 through 2022. The growth in the national average and in the state of California may positively affect new jobs in Compton College's service area, in relation to the Heating, Air Conditioning, and Refrigeration industry.

California's top ten industries statewide to employ Heating, Air Conditioning, and Refrigeration Mechanics and Installers show sustainable growth in primary HVAC industry areas. For example, in 2018 Plumbing, Heating, and Air Conditioning Contractors grew by 57.6%, Residential Remodelers by 3.1%, Electrical Contractors and Other Wiring Installation Contractors by 2.3%, and All Other Specialty Trade Contractors by 8%.

Between 2013 and 2018 there was a significant change in the HVAC industry in California. Plumbing, Heating, and Air Conditioning Contractors jobs grew by 35% and Residential Remodelers expanded by 40%. Compton College's location offers many employment opportunities within a small commute being so close to Los Angeles. Overall, the economy is projected to grow, and providing service jobs in the Heating, Air Conditioning, and Refrigeration industry supports economic growth and looks very promising for students being able to reach their career goals.

2) How does the program address needs that are not met by similar programs in the region?

We recognize that our students struggle with housing, food insecurity, and transportation. These are all stress factors that may negatively affect Heating, Air Conditioning, and Refrigeration student attendance, program completion, and success rates in licensure attainment. Therefore, our program has structured missing hours differently than our Community College Heating, Air Conditioning and Refrigeration department counterparts. Other programs, with few exceptions, drop their students upon their reaching a small number of missed hours; we encourage students who are performing academically below par because of poor attendance to drop their courses. Additionally, extra credit assignments, makeup exams, and makeup practical assignments (all on a case-by-case scenario) provide opportunities for students performing below par because of missing hours to raise their grades.

The ACR program offers both evening and daytime courses to offer classes to fit in students' schedules. At the institution level, the College offers and provides a variety of services through the

Student Resource center. These resources are not necessarily available at like institutions, especially trade school institutions.

Our faculty provide many opportunities for our Heating, Air Conditioning and Refrigeration students to meet successful professionals from our surrounding area in the diverse domains of the Heating, Air Conditioning and Refrigeration field. For example, we invite professionals to provide demonstrations in the areas of Heating and Air Conditioning repairs and service. We also offer field trips to supply houses and tradeshow when available. These special visits provide a unique opportunity for our students to make job connections and network in Los Angeles County's HVACR industry and beyond.

It is important for our faculty to create, provide, sustain, and implement equitable program opportunities that support our Heating, Air Conditioning, and Refrigeration students. We believe students are individuals, each with specific needs; with this in mind, our faculty genuinely encourages all HVAC students to flourish. Addressing the needs of our students by providing these diverse opportunities makes our program unique and sets us apart from other programs in the region.

- 3) What are the completion, success, and employment rates for the students? Discuss any factors that may impact completion, success, and employment rates. If applicable, what is the program doing to improve these rates?

The data provided reveal that since the program's inception in 2014, 6 students have received an A.S. Degree in Environmental Control Technology (HVAC) and 223 students have received Environmental Control Technology (HVAC) certificates since 2014.

The new funding formulas for Community Colleges are changing and earned student certificates will provide additional funding for our college. Therefore, it is highly recommended that the application process be streamlined to no longer require a student signature, and that it become the sole responsibility of our vocational counselor and/or division personnel to ensure all student certificate application forms are completed and finalized with the campus departments in charge of completing this process.

The aggregated student success data below reveal an upward trend since the Environmental Control Technology (HVAC) program was instituted and an exemplary success rate for HVAC student enrollees. For example, the program's success rate in Fall 2015 was 94.7 %; by Fall 2016 it had increased to 96.8%, a 2.1% success rate increase. By Spring 2018 the success rate overall declined to 90.5%, after increasing again from a large dip in the Spring of 2017 down to 88.8%.

Overall, the success rates of our Heating, Air Conditioning, and Refrigeration students reflect highly qualified professional instruction using real-world applications, applying up-to-date curricula, and implementing online technology learning tools.

The employment rates for Environmental Control Technology (HVAC) students that graduated from Compton Community College was 56% for the 2014-2015 school year and has had a steady increase to 59% at the 2017-2018 with a spike to 84% in the 2016-2017 school year, proving that the Heating, Air Conditioning, and Refrigeration field is steadily growing and employment consistently increasing.

Associate of Science Degrees Awarded

	2014-2015	2015-2016	2016-2017	2017-2018
Environmental Control Technology (HVAC)	1	1	3	1

Certificates Awarded

	2014-2015	2015-2016	2016-2017	2017-2018
Environmental Control Technology (HVAC)	37	74	81	31

Success Rates

	FA2015	SP2016	FA2016	SP2017	FA2017	SP2018
Air Conditioning and Refrigeration	94.7%	96.3%	96.8%	88.8%	91.1%	90.5%

Employment Rates

	2014-2015	2015-2016	2016-2017	2017-2018
Environmental Control Technology (HVAC) (TOP Code: 0946)	56%	60%	84%	59%

Source: CCCC CO CTE Core Indicator Summary Report

- 4) If there is a licensure exam for students to work in their field of study, please list the exam and the pass rate. If there are multiple licensure exams in the program, include them all. Discuss any factors that may impact licensure exam pass rates. If applicable, what is the program doing to improve these rates?

Just like other programs offered here at CCC (ATEC & ACRP), there are no official or applicable licensing required for the HVACR (ACR) program.

- 5) Are the students satisfied with their preparation for employment? Are the employers in the field satisfied with the level of preparation of program graduates? Use data from student surveys, employer surveys, and other sources of employment feedback to justify your response

Data has not been provided to accurately answer this question.

- 6) Is the advisory committee satisfied with the level of preparation of program graduates? How has advisory committee input been used in the past two years to ensure employer needs are met by the program? Describe any advisory committee recommendations that the program is either unable to implement or is in the process of implementing.

The minutes and comments from the advisory committee have been requested but were never furnished. If the minutes and comments from the advisory committee can be furnished, then this question can be accurately answered.

California Education Code 78016 requires that the review process for CTE programs includes the review and comments of a program's advisory committee. **Provide the following information:**

- a) Advisory committee membership list and credentials

- b) Meeting minutes or other documentation to demonstrate that the CTE program review process has met the above Education Code requirement.