Institutional Program Review—2018-2019
Program Efficacy Phase: Instruction
DUE: Monday, March 18, 2019 by NOON

Purpose of Institutional Program Review: Welcome to the Program Efficacy phase of the San Bernardino Valley College Program Review process. Program Review is a systematic process for evaluating programs and services annually. The major goal of the Program Review Committee is to evaluate the effectiveness of programs and to make informed decisions about budget and other campus priorities.

For regular programmatic assessment on campus, the Program Review Committee examines and evaluates the resource needs and effectiveness of all instructional and service areas. These review processes occur on one-, two-, and four-year cycles as determined by the District, College, and other regulatory agencies. Program review is conducted by authorization of the SBVC Academic Senate.

The purpose of Program Review is to:

- Provide a full examination of how effectively programs and services are meeting departmental, divisional, and institutional goals
- Aid in short-range planning and decision-making
- Improve performance, services, and programs
- Contribute to long-range planning
- Contribute information and recommendations to other college processes, as appropriate
- Serve as the campus' conduit for decision-making by forwarding information to appropriate committees

Our Program Review process includes an annual campus-wide needs assessment each fall and an in-depth efficacy review of each program on a four-year cycle. All programs are now required to update their Educational Master Plan (EMP) narrative each fall. In addition, CTE programs have a mid-cycle update (2 years after full efficacy) in order to comply with Title 5 regulations.

Committee members are available to meet with you to carefully review and discuss your Program Efficacy document. You will receive detailed feedback regarding the degree to which your program is perceived to meet institutional goals. The rubric that the team will use to evaluate your program is embedded in the form. As you are writing your program evaluation, feel free to contact the efficacy team assigned to review your document or your division representatives for feedback and input.

Draft forms should be written early so that your review team can work with you at the **small-group workshops:**
Friday, February 22 from 9:30 to 11:00 a.m. in NH-222
Friday, March 1 from 9:30 to 11:00 a.m. in B-204

Final documents are due to the Committee co-chairs (Paula Ferri-Milligan at pferri@sbccd.cc.ca.us and Wallace Johnson at wjohnson@sbccd.cc.ca.us) by **NOON on Monday, March 18, 2019**.

SUBMISSION FORMAT: **1) Use this current efficacy form and attach as a MICROSOFT WORD DOCUMENT (do NOT convert to PDF)**
2) Do NOT change the file name

It is the writer's responsibility to be sure the Committee receives the forms on time.

The efficacy process now incorporates the EMP sheet and SLO/SAO documentation, which you will need to insert. We have inserted the dialogue from the committee where your last efficacy document did not meet the rubric, the curriculum report (if applicable), and the SBVC demographic data. **If you have questions regarding the SBVC demographic data, contact Christie Gabriel, Research Analyst, at** cgabriel@sbccd.cc.ca.us **by February 25. If you have additional data requests, those requests must be submitted to Christie Gabriel by February 8.** Following is the link to Program Review Efficacy Resources, which will be useful as you complete your efficacy report:

https://www.valleycollege.edu/about-sbvc/campus-committees/academic-senate/program-review/17-efficacy.php

Program Efficacy

2018 – 2019

Program Being Evaluated

HVAC/ R Heating, Ventilation, Air Conditioning/ Refrigeration

Name of Division

Applied Technology, Transportation and Culinary Arts

Name of Person Preparing this Report	**Extension**
Johnny Roberts, Tarif (Terry) Halabi	(909) 387-1624

Names of Department Members Consulted

Phillip Lawton, David Lindeman, William Duncan

Names of Reviewers

Michael Mayne, Paula Ferri-Milligan, Joel Lamore

Work Flow	**Date Submitted**
Initial meeting with department	2/15/2019
Meeting with Program Review Team	3/1/2019
Report submitted to Program Review co-chair(s) & Dean	**by NOON on March 18**

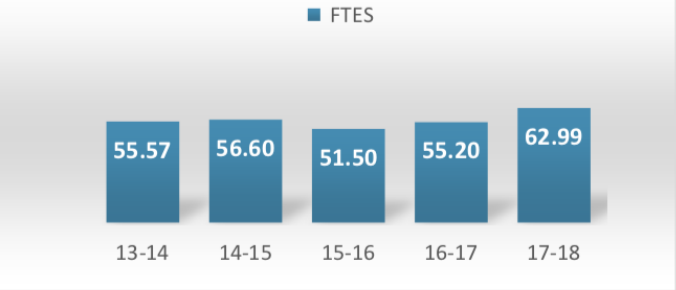
Staffing

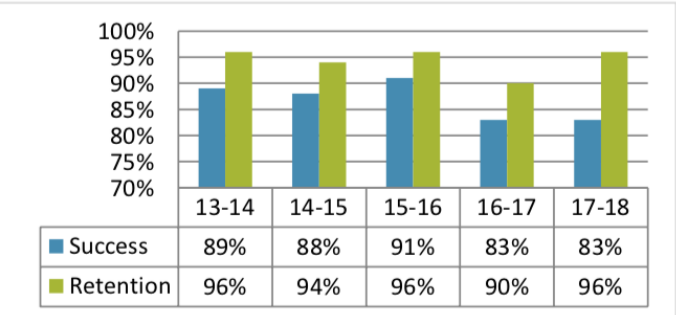
List the number of full and part-time employees in your area.

Classification	**Number Full-Time**	**Number Part-time, Contract**	**Number adjunct, short-term, hourly**
Managers			
Faculty	1		8
Classified Staff			
Total	1		8

HEATING, VENTILATION, AIR CONDITIONING & REFRIGERATION (HVAC/R) — 2017-2018

Description: (Provide an updated overview of your program/area. 225 Words Max)
The program prepares students for entry level employment in the residential and commercial HVAC/R repair, maintenance, and installation. With our dry hot weather prevalent in the inland empire and the western region in general and longer dry periods in the west, HVAC/R technicians are heavily in increasing demand. Many HVAC/R technicians either work for HVAC/R companies or have their own business or work as independent contractor for major box stores. The department offers Environmental Protection Agency (EPA) certification, required for handling refrigerant gases used in the industry. It also offers Refrigeration Services Engineers Society (RSES) classes that must be taken by a North American Technician Excellence (NATE) certified professional in the HVAC/Refrigeration field to keep current with industry standards. The program directly aligns with these industry standards.





	13-14	14-15	15-16	16-17	17-18
Success	89%	88%	91%	83%	83%
Retention	96%	94%	96%	90%	96%

	13-14	14-15	15-16	16-17	17-18
Duplicated Enrollment	271	276	252	269	312
FTEF	4.48	4.82	4.82	5.51	6.39
WSCH per FTEF	372	352	320	301	296

	13-14	14-15	15-16	16-17	17-18
Sections	13	14	14	16	19
% of online enrollment	0%	0%	0%	0%	0%
Degrees awarded	2	3	4	2	
Certificates awarded	8	12	16	14	

Assessment: (Provide an analysis based on the data provided. As you do so, address each of the tables/charts. 225 Words Max)
1. FTES and enrollment has increased an impressive 14% over the previous year and continues to increase due to class section expansion daytime slots in order to capture that pool of students that historically where evening only students. The FTES improvement is also due to the hiring of the full-time faculty the previous year which enabled him to bring in his vast HVAC experience to the field and to better coordinate and reduce department inefficiencies
2. FTEF has also increased warranting the hiring of the Full time Faculty since this department has not had a full time Faculty in over 9 years. In fact overall program performance numbers have improved despite the Full timer only being hired 2 semesters ago.
3. WSCH declined slightly due to lab intensive classes and the reduction of student number per section as well as offering more sections of the beginning courses. This number is expected to further drop in order to provide a more quality based teaching of this intensively hands on program.
4. Student Success has stabilized to a realistic average reflecting assessment accuracy. However Retention has markedly increased and returned to previous levels which align with consistent SLO data showing high success rates. This also due to program efficacy and the updated state of the art training equipment introduced in the program.

Progress from Last Year's Action Plan: (Provide an update on the progress made from last year's Action Plan. 225 Words Max)
1. Continued to offer more of the RSES certification classes which is the industry recognized certification and is required to be taken also as refresher courses for technicians already within the industry as well as beginners. Every semester, two classes in a series are being offered in order to complete the series of 12 courses within the program
2. Continued to grow our Part time Pool for Faculty since it is very hard to find industry professionals willing to teach the subject matter since they are paid higher wages providing services to the public.
3. Increased outreach and promotional activities within campus and with local chapters of the Refrigeration Services boards at every meeting. Participated in Skills USA competition and have taken first place recognition amongst California schools offering similar programs. More activities are needed to increase enrollment.

SAOs/SLOs/PLOs: (Summarize how the assessment of SAOs, PLOs and/or any SLOs that shows significant effect has influenced your goals. 200 Words Max)
Analysis of PLO data for the past three years yields that the students success rate has continued to exceed 93% on the average indicating that we have a highly effective and robust program meeting industry requirements. This is apparent because the programs major PLO states that students "Be eligible to sit for industry/Federal-style examination (RSES, NATE) on the theory and procedures of HVAC/R technology". The PLO is directly subordinated to national industry recognized standards and is sanctioned by their rules and regulations giving validity and efficacy for the program. In addition, course PLO's are routinely examined and reviewed and are modified as per the recommendation of the faculty as well as our advisory committee members who both are part of the industry as well as RSES and NATE. These recommendations also influence departmental goals that deal with aligning the program to meet industry needs and standards.

Departmental/Program Goals: (Goals should be specific, measurable, linked to your data analysis, and reflected in the Action Plan section). Tie goals to the college.
1. Hire a lab technician in aiding instructors to set up, maintain, and organize Lab equipment and materials to help instructors effectively deliver their course material.
2. Establish industry-wide partnerships to provide student internship opportunities and provide a pathway for student employment opportunities.
3. Continue to offer morning sections of beginning courses to create additional enrollment through attraction of the daytime student population since we have historically offered only evening classes for the working population.
4. Increase outreach activities and program promotion to local high schools and industries within the building maintenance and construction fields.
5. Establish pathways, if possible, with local high schools in order to provide career path opportunities whether through concurrent or dual enrollment.
6. Continue to grow Adjunct Faculty pool as there exists a shortage of qualified instructors to teach especially in the morning.

Challenges & Opportunities: (Challenges and opportunities should be reflected in the Action Plan. 200 words maximum).
1. Remains a challenge to hire part –time faculty to teach in morning section. All are typically employed in the industry with high pay-scale and if available only in evenings.
2. Classroom and Lab spaces are being used to capacity. Lecture and Lab sessions are scheduled in alternates forcing Lab sessions to be taught before lecture in some instances. Space remains a premium and to increase class sections or sizes remain a challenge. Only one LAB serves the program and that continues to limit growth.
3. Seek out industry partnerships to explore internships for students remains a challenge as many local contractors are not large enough to consider the liability involved, however their increased numbers and with aggressive contact, this can become a good opportunity.
4. Outreach activities and program promotion to be supported by part time faculty, however at their own expense currently.

Action Steps	Department Goal	Necessary Resources to Complete	Target Completion Date
1. Hire Lab Technician to assist in Lab setup and maintenance.	1	Funding	2019-2020
2. Establish industry partnerships for apprenticeship opportunities for students	2	Funding	ongoing
3. Obtain a secondary lab space since program growth will require us to have a secondary lab space to expand our teaching capabilities	3	Facilities	unknown
4.Perform more outreach	4	Funding	ongoing

Part I: Questions Related to Strategic Initiative: Increase Access

Goal: SBVC will improve the application, registration, and enrollment procedures for all students.

SBVC Strategic Initiatives: Strategic Directions + Goals

	Does Not Meet	Meets	Exceeds
Demographics	The program **does not provide** an appropriate analysis regarding identified differences in the program's population compared to that of the general population.	The program **provides an analysis** of the demographic data and provides an interpretation in response to any identified variance. The program **discusses the plans or activities** that are in place to recruit and retain underserved populations as appropriate.	In addition to the meets criteria, the program's analysis and plan **demonstrates a need** for increased resources.
Pattern of Service	The program's pattern of service is **not related to the needs of students**.	The **program provides** evidence that the pattern of service or instruction meets student needs. The program **discusses the plans or activities** that are in place to meet a broad range of needs.	In addition to the meets criteria, the program **demonstrates that the pattern of service needs to be extended**.

Use the demographic data provided to describe how well you are providing access to your program by answering the questions below.

Demographics – 2015-16 to 2017-18 Academic Years		
Demographic Measure	**Program: Heating, Ventilation, A/C & Ref.**	**Campus-wide**
Asian	7.1%	4.8%
African-American	9.0%	12.4%
Hispanic	62.2%	65.3%
Native American	0.4%	0.2%
Pacific Islander	0.0%	0.2%
White	21.1%	13.2%
Unknown	0.1%	3.9%
Female	3.2%	57.5%
Male	96.8%	42.5%

Disability	2.8%	5.4%
Age 19 or Less	0.6%	22.5%
Age 20 to 24	17.1%	34.7%
Age 25 to 29	17.4%	17.7%
Age 30 to 34	19.6%	9.3%
Age 35 to 39	13.3%	5.5%
Age 40 to 49	18.2%	6.2%
Age 50+	13.8%	4.1%

Demographics:

Provide an **analysis** of how internal demographic data compare to the campus population. Alternatively, provide demographics relative to the program that are collected. If internal data is not collected, describe plans to implement collection of data.

An examination of the demographic data above reveals that the HVAC program student population closely mirrors the campus-wide populations in general. The Hispanic, Asian, and African American Demographic measure correlates very effectively against the composition of students on the San Bernardino Valley College campus. This shows that we as a community college are truly serving our community constituents which are by majority Hispanic but nonetheless quite diverse. Compared with Campus-wide average, The Asian student population is 2.1 percent higher, while the Hispanic population is 6.9% lower and the African American population is only 3.2% lower, all within acceptable range and fall within our Colleges mission statement of *providing quality education and services that support a diverse community of learners*. It is additionally important to point out that we have had an impressive increase in the white student population compared with the last four years in that it exceeded the campus-wide percentage by a 12.6% increase which can be attributed to perhaps more adults students wanting to change careers as a cause of the economic recession that has inflicted the area. As for the female population, it is important to note that historically, CTE majors in general have had an unbalanced female to male ratios and they have been under enrolled in this field. It remains a challenging issue to get female enrollment to grow to offset the imbalance. It is however encouraging to see that in comparison to the last four years, the percentage of female enrollees has doubled to 4.6% from 2.5%. We are thus working towards increasing the ratio of female student population in the program and continue to register and retain female students towards these increasingly higher paying careers by having more contacts with our community through high school presentations and high school career day visitations to make local students aware of the opportunities that exist in this career.

In addition, if we look at the disabled population ratio as compared to the campus-wide number, we see that it is double that of the campus wide average. That is extremely encouraging and reflects ongoing efforts by the faculty to provide this special population an opportunity of learning a valuable skill to improve their lives by working closely with the DSPS office to provide any help that might be needed for such populations. We need another FT Faculty to further aid in these activities.

In regards to the average age of our students in the program. It can be seen that its remarkably higher than the campus average and we believe it's due to the nature of the technical field in that a good chunk of our student body are adults who are switching careers or are coming back to school to learn a trade. We thus would like to address this issue by focusing on the newly graduated high school students and to promote the program to that group of students to make them aware of the ever increasing demand that this trade has. These efforts will include more active Faculty participation in high school visitation and presentations throughout the community.

Pattern of Service:

Describe how the pattern of service and/or instruction provided by your department serve the needs of the community. Include, as appropriate, hours of operation/pattern of scheduling, alternate delivery methods, weekend instruction/service.

We continue to offer all of the classes HVAC001 through HVAC007 required for certification consistently every semester in order to empower our students to complete their certifications within their recommended program time span of three semesters (see below for recommended study plan). All of these courses are offered in the evening at the 6:00 p.m. time slots and on Saturday morning and afternoon. This serves our population extremely well in that it provides our prospective students to be able to work during the day and attend the classes conveniently in the evening. This schedule also provides students the ability to find jobs during the day in the field as trainees and still complete the certificate requirements within three semesters. Only last semester, we began offering morning and afternoon sessions of the HVAC 001 and 004 courses in order to address the increasing needs and to attract students of the morning population which may include looking for a viable CTE trade unemployed workers needing to learn an in demand skill or newly graduated high school students looking for a viable CTE trade career skill. Thus, this will increase our enrollment statistics into the program since these two courses are for the recommended beginning courses (see below). This pattern of scheduling also permits having new student enrollments ongoing throughout the year being the FALL and Spring Semester. In addition, the North American Technician Excellence certification (NATE) which is a highly respected HVAC certification body, requires that certified technicians must enroll and take classes as refresher courses every five years. This reinforces the idea that evening class patterns best serve the working technicians. It is also important to note that our program has one Full time faculty which enabled us to offer the morning classes to help grow the program, because the remaining adjunct Faculty are working professionals in the field during the daytime and do teach our curriculum in the evenings. Using Guided Pathways, our lab classes needed to be smaller than in the past. We have limited the enrollment to 20 instead of 25.

ATTENTION REFRIGERATION STUDENTS

HERE IS THE SUGGESTED ORDER THAT YOU TAKE YOUR REFRIGERATION CLASSES.....NOTE THAT YOU **DO NOT** TAKE THEM IN NUMERICAL SEQUENCE.

TAKE THE CLASSES IN THIS ORDER:

First Semester

REFRIG 001
REFRIG 004
REFRIG 007

Second Semester

REFRIG 002
REFRIG 005
TECALC 087

Third Semester

REFRIG 003
REFRIG 006

Note that the REFRIG 007 and the TECALC 087 class may be taken in either semester.

Part II: Questions Related to Strategic Initiative: Promote Student Success

Goal: SBVC will increase course success, program success, access to employment, and transfer rates by enhancing student learning.

SBVC Strategic Initiatives: Strategic Directions + Goals

	Does Not Meet	Meets	Exceeds
Data/Analysis demonstrating achievement of instructional or service success	Program **does not provide an adequate analysis** of the data provided with respect to relevant program data.	Program **provides an analysis** of the data which indicates progress on departmental goals.	In addition to the meets criteria, the program **uses the achievement data** in concrete planning and **demonstrates** that it is prepared for growth.
Service Area Outcomes and/or Student Learning Outcomes and/or Program Level Outcomes	Program **has not demonstrated** that it is continuously assessing Service Area Outcomes (SAOs) and/or Student Learning Outcomes (SLOs) and/or Program Level Outcomes (PLOs) based on the plans of the program since their last program efficacy. Evidence of data collection, evaluation, and reflection/feedback, and/or connection to area services is **missing or incomplete**.	Program **has demonstrated** that it has fully evaluated within a four-year cycle and is continuously assessing all Service Area Outcomes (SAOs) and/or Student Learning Outcomes (SLOs) and/or Program Level Outcomes (PLOs).	In addition to the meets criteria, the program **demonstrates that it has fully incorporated Service Area Outcomes (SAOs) and/or Student Learning Outcomes (SLOs) and/or Program Level Outcomes (PLOs) into its planning, made appropriate adjustments, and is prepared for growth**.

Student Success:

Provide an analysis of the data and narrative from the program's EMP Summary and discuss what it reveals about your program. (Use data from the Charts that address Success & Retention and Degrees and Certificates Awarded")

Latest EMP data clearly shows that student success rate has stabilized to a realistic average of 83% reflecting assessment accuracy. This success rate is among the highest campus-wide and is a testament to the validity of our program. It also can be attributed to providing a structured program of study as outlined above (Part I of report) for students to follow as a built-in Guided Pathway for them to obtain a certificate. The Retention rate has markedly increased and attained a level of 96% which align with consistent SLO data showing high success rates. This also due to program efficacy and the updated state of the art training equipment introduced in the program to keep the students' skills current and in par with today's industry standards. In addition, both retention and success rates can be attributed to our excellent Faculty having exceptional field experience working in the HVAC industry and staying current with industry standards and the actual hands-on experience the students receive in the laboratory portion of the classes by working on air conditioning and refrigeration systems which represent the varied units our students will service in the industry. Some of our faculty members hire our students to come and work at the companies where they are employed. The number of Certificates and Degrees awarded has increased from a level of 10 in the years 13/14 to an average of 17 annually. This steady increase can be attributed to being able to add morning sections in the

last two semesters and to offer all the courses consistently every semester which directly affect Degree and Certificate awarded numbers.

Supplemental Data:

Provide any additional information, such as job market indicators, standards in the field or licensure rates that would help the committee to better understand how your program contributes to the success of your students.

Data from the EDD labor market information database indicates very strong growth and demand in the HVAC/Refrigeration field. The median wage in 2018 for Heating/Air Conditioning and Refrigeration Workers Statewide was $57,225 annually or $27.51 hourly. The projected job growth shown for The San Bernardino/Riverside County area is tremendous testifying to the great need for the program. A 40.1 percent growth in job openings are projected between years 2016-2026, one of the Largest percent increases in projected employment growth in any county in California and mostly due to the hot summer climate afforded in the inland empire as well as the rapid development and expansion in our region. The data shows employment projections to be 3740 up from 2670, with an annual growth rate of over 4%.

Moreover, the typical job requirements stated in the above referenced website are repairing, installing, troubleshooting, testing, adjusting, reassembling, calibrating, and operating the heating, ventilation, air conditioning/refrigeration (HVAC/R) systems or subsystems. All of which are covered in our curriculum.

Additionally, the national standards of acceptance in the HVAC/Refrigeration field are set by the Refrigeration Service Engineers Society (RSES), the North American Technician Excellence (NATE) organization, and the Environmental Protection Agency (EPA). Our program includes and incorporates within the curriculum all of the aforementioned national, State, and local standards including Title 24 of the Building code that specifies strict efficiency standards for environmental control systems. Our students must also complete the EPA 608 (Section 608 of the Clean Air Act) Universal Certification (for the handling of refrigerant gases, covering all three Types of refrigerant using devices) course, and carry their authorization card on the job site. Passing rate for such certification has been above 90 percentile.

(INSERT SLO and/or SAO and PLO DATA as appropriate FROM CURRENT REPORT. INSERT COURSE MAP IF AVAILABLE. Refer to prior reports as needed for the analysis.) (Contact Dr. Celia Huston, Co-Chair, Accreditation Committee, at chuston@valley.edu if you need assistance.) **NOTE: Do NOT include the summaries of the outcomes in this document.**

Student Learning Outcomes:

Synopses of SLO Reports (not all listed)

Course HVAC001 SLOs

Note: Course SLO Summary Evaluation Form is available.

#	SLO Statement	# of Students Assessed	# of Students who Met SLO	% of Students who Met SLO
1	Students will demonstrate their ability to examine, identify and categorize the operation and components of a typical closed refrigeration system by using the correct technical data and reference materials. Students will pass a written examination with a minimum passing score of 70%.	125	104	83.20%
2	Students will distinguish between different trade tools, soldering, brazing, cutting, and bending refrigerant tubing by using specialty tools, technical data and reference materials to the accuracy stated for each specific operation.	125	104	83.20%
3	Students will demonstrate their ability to compare the purpose and operation of three different metering systems by using reference materials and technical data. Students will pass a written examination minimum score of 70%.	124	104	83.87%

Assessment Methods & Criteria

- I give a variation of the course final exam the first meeting of the class. That helps me know the class "weakness" so I can focus on those. Most every semester, NO ONE will even receive a grade of 50% until the completion of the course.
  (HVAC/R-001-01 for 2016FA)
- On the first day of class, I give a version of the final exam for the course. I compare this to the real final exam at the end of the course. That gives me the real Student Learning Outcome results. I have

done this for over twenty years beginning in 1996 at this school and the same classes.
(HVAC/R-001-01 for 2017SP)

Reflections

- This strategy has been in place since I began teaching here in 1996. I have found several other instructors who have been practicing this style, especially at Riverside Community College in the Math Department, and at College of the Desert. I can see no other way to assess the current class and its performance.
(HVAC/R-001-01 for 2016FA)
- I had very good feedback from some students who were applying for jobs, and the information from this class helped them.
(HVAC/R-001-01 for 2017SP)
- This method of assessing performance has worked for me since 1996.
(HVAC/R-001-02 for 2017SP)
- The current method for evaluation of the students directly shows what they knew on entering the class and what the outcome was when they completed the class.
(HVAC/R-001-01 for 2017FA)
- Would like adding the use of the G&W lab book and student manual, better organize the lab projects. want to use more of the instructor resources available thru the publisher of the course book.
(HVAC/R-001-02 for 2018FA)

Course HVAC 002 SLOs

Note: Course SLO Summary Evaluation Form is available.

#	SLO Statement	# of Students Assessed	# of Students who Met SLO	% of Students who Met SLO
1	Students will demonstrate their ability to compare, categorize, and distinguish between the operation and components of typical domestic and commercial refrigeration systems using the correct technical data and pass a written test with a minimum score of 70%.	57	52	91.23%
2	Students will use the correct reference materials and technical data to construct and practice servicing domestic refrigeration units and evaluate operation of	55	52	94.55%

#	SLO Statement	# of Students Assessed	# of Students who Met SLO	% of Students who Met SLO
	the various functions according to the correct technical data with 100% accuracy.			

2 Assessment Methods & Criteria

- Students will select and use the correct technical data and reference materials to develop a plan to explain the operation of different compressor types and the different relays controls Students will select and use the technical data and specialty tolls to appraise, evaluate and critique student's assigned laboratory projects. Student's during the laboratory sessions observing safety and assisting the instructor. student' will use the correct technical data and reference materials and pass a written examination with a minimum passing score of 70%.
  (HVAC/R-002-01 for 2016FA)
- The 3 students that failed this course and did not meet the S.L.O. standard for HVAC/R -002-O1. they had sub-stand mathematics ability. English as second language ,and poor reading ability,and poor class attendance.
  (HVAC/R-002-01 for 2017FA)

3 Reflection(s)

- student's are sub standard reading and math.
  (HVAC/R-002-01 for 2016FA)
- some student's have sub stand reading and math.
  (HVAC/R-002-01 for 2017SP)
- New students pre-course requisites should be, basic aptitude for mechanical ability, basic reading,math,and writing.
  (HVAC/R-002-01 for 2017FA)

Course HVAC004SLOs

Note: Course SLO Summary Evaluation Form is available.

#	SLO Statement	# of Students Assessed	# of Students who Met SLO	% of Students who Met SLO
1	Students will demonstrate their ability to distinguish between electrical systems, components and circuits by using the	138	126	91.30%

#	SLO Statement	# of Students Assessed	# of Students who Met SLO	% of Students who Met SLO
	correct technical data to pass a written examination with a minimum score of 70%.			
2	Students will demonstrate their ability to use the proper multi-meter and settings to measure volts, amperes, ohms, and power for a given circuit with an accuracy of a minimum of 70%.	138	126	91.30%
3	Students will demonstrate safe work practices and pass a written examination with a minimum score of 70%.	138	126	91.30%

Assessment Methods & Criteria

- I give a variation of the course final exam the first class meeting and that helps me know the class "weaknesses" so I can focus more on those. Most every semester, NO ONE will even get a 50% grade until the completion of the course.
  (HVAC/R-004-01 for 2016FA)
- On the first class meeting, I give a version of the final exam for the class. I compare the results to the actual final exam from the last day of class. This gives me an accurate comparison of what the Student Learning Outcome is.
  (HVAC/R-004-01 for 2017SP)

Reflections

- This strategy has been in place since I began teaching here in 1996. I have found several other instructors who have been practicing that style, especially at other colleges; Riverside Community College and College of the Desert. I do not know of another way to evaluate the students on a current scale instead of comparing with another class.
  (HVAC/R-004-01 for 2016FA)
- This procedure works well in identifying what was learned in THIS class with THESE students.
  (HVAC/R-004-01 for 2017FA)

Course SLOs/SAOs. Demonstrate that your program is continuously assessing Course Student Learning Outcomes (SLOs) and/or Service Area Outcomes (SAOs). Include evidence of data collection, evaluation, and reflection/feedback, and describe how the SLOs/SAOs are being used to improve student learning (e.g., faculty discussions, SLO revisions, assessments, etc.). Generate reports from the Cloud as necessary. Include analysis of SLO/SAO Cloud reports and data from summary reports. This section is required for all programs.

There has been a great improvement in the SLO data collection, assessment, and evaluations since the last Full Efficacy program Review. The above data just a small synopses of three of the actual 21 active courses

Also, our department actively evaluates, and modifies, if needed, each course's SLO's annually during the department meetings as well as direct communications between the Faculty that teach that particular course with the department chair. In addition, these issues are further discussed and evaluated within the advisory committee meetings to make sure of their validity and currency as well as their overall relations to the program outcomes. Beginning with the HVAC001 which covers HVAC/.R Fundamentals, it has been determined that the 3 SLO's, listed in the preceding section, are adequate and support the course objectives because it covers a wide variety of skills needed for the beginning student to attain so that they can utilize the basic concepts of the course that are the building blocks of the Refrigeration cycle and systems and its components and to be able to recognize the different systems and to perform cutting, bending, brazing, soldering refrigerant tubing etc. This course is analogous to the ABCs of the Refrigeration field and many standardized industry and potential employer tests are based on the material covered in this critically essential course. This also ties directly to our Assessment method of having students pass a final comprehensive examination that mirrors the industry-standardized tests. In addition, if you refer to the reflections section above that deals with this particular course, you see that the assessment methodologies are. The trend for student success rate for this course hovers around 83% and we strive to improve that number, as it is probably the lowest overall within all courses SLO has but has improved from historical norms.

As for the HVAC002 Domestic Mechanical Refrigeration course, dealing with compressor systems, we see that the 2 SLO's strongly reflects the objectives of the course in that students must be able to compare, categorize, and distinguish between the operation and components of typical domestic and commercial refrigeration systems using the correct technical data use , this course has many concepts and skills such as compressor troubleshooting that students must master to successfully continue through with a career in this industry. This troubleshooting is what the second SLO deals with. This being one of the single most important skills as dictated by our industry advisory committee. Both of these SLO's have a high rate of success above 91 percent.

Moving to the HVAC004 The Electrical Fundamentals of HVAC/R. In this course, the objective is to teach the different electrical systems utilized in the A/C systems from A/C power and relay control circuits to drive compressors and to also correctly troubleshoot such systems. Also, to learn about low voltage control circuits and thermostatic systems and how to trouble shoot them as well as well as DC. Another course that SLO review has shown the need for modification is well. The two SLO's were evaluated at the last department meeting and have been thoroughly visited and dissected by advisory committee members and it was determined that they are adequate in that most repair issues occurring in HVAC systems are electrically related. So general knowledge of the electrical system as well as utilizing the correct test equipment and procedures to troubleshoot a faulty circuit are the main skills needed for the course. The assessment methodology of that course was recently changed as students were given a general relay circuit with a fault and they had to find the fault and repair it. That seemed to be the better assessment method to hone their critical thinking and trouble shooting skills. As far as the written examination it remains the standard questions that let students pick out the proper circuit wiring methodology and to know the basic circuitry found in A/C systems. It is important to note that SLO outcomes for this particular class have consistently averaged above 93%.

Program Level Outcomes:

summaries of the PLO outcomes in this document.

HVAC/R Certificate		Students will demonstrate their ability to distinguish between electrical systems, components and circuits by successful interpretation of schematics and diagrams.	Students will demonstrate their ability to correctly compare and categorize operation and components of typical refrigeration, heating and humidifying system	Students will distinguish between and demonstrate the ability to correctly use different HVAC/R trade tools and meters.	Students will demonstrate safe work practices and use required personal protective equipment.	Students will demonstrate their ability to design, build, troubleshoot and service HVAC/R equipment
CLASSES						
HVAC/R 001		X		X		X
HVAC/R 002			X			X
HVAC/R 003		X		X		X
HVAC/R 004		X		X	X	
HVAC/R 005		X			X	
HVAC/R 006			X			X
HVAC/R 007				X	X	X

Program SLOs (3 year report) (This is erroneous Does not match up with Map above. Needs to Be corrected) included to illustrate error.

Note: Program SLO Summary Evaluation Form is available..

Note: These contain duplicated head count. A student can be counted once for each statement in a SLO, and for each class they took.

#	SLO Statement	# of Students Assessed	# of Students who Met SLO	% of Students who Met SLO
1	Be prepared to transfer a core curriculum to an accredited, 4-year college or university with junior class standing in Heating, Ventilation, Air Conditioning/Refrigeration or a related major.	296	240	81.08%

#	SLO Statement	# of Students Assessed	# of Students who Met SLO	% of Students who Met SLO
2	Select and operate the required test equipment and during troubleshooting and repair operations, with an emphasis on safety in use and accuracy in results.	1247	1116	89.49%
3	Analyze, interpret, and trace signal flow diagrams used in signal tracing of complex wiring circuits.	349	341	97.71%
4	Effectively communicate with and advise customers and co-workers, both written and orally, regarding the progress of and decisions made concerning test and repair procedures.	1328	1197	90.14%
5	Be eligible to sit for industry/Federal-style examination (RSES, NATE) on the theory and procedures of HVAC/R technology.	750	693	92.40%
6	N/A			

If your program offers a degree or certificate, describe how the program level outcomes are being used to improve student learning at the program level (e.g., faculty discussions, SLO revisions, assessments, etc.). **Describe** how this set of data is being evaluated or is planned to be evaluated. Generate reports from the SLO Cloud as necessary. Include analysis of SLO Cloud reports and data from 4-year summary reports. If your program does not offer a degree or certificate, this section is optional (but encouraged).

The Program Level Outcomes listed in the MAP above just above the 3 year SLO report are correct, while the listed 3 year report pulled from the cloud are wrong. This needs be corrected. However in discussing the Program Level Outcomes listed in the course MAP above, we review our Program Level Outcomes annually at our departmental meetings as well as our advisory meetings and they have been deemed applicable and valid with no modifications needed. Department Faculty and advisors have maintained that these outcomes must be generalized to encumber more specific SLO's which might be modified while keeping the PLO's valid. For example, there exists a common SLO within the PLO that is common across most of the Program classes which states "Students will demonstrate their ability to design, build, troubleshoot and service HVAC/R equipment" This will require that students must possess certain skills, which are outlined within the support course's SLO's within all the other courses that it maps to. Another, almost global PLO found is the "Students will demonstrate their ability to distinguish between electrical systems, components and circuits by successful interpretation of schematics and diagrams" is an absolute necessary skill needed for students to succeed in their career. The third most global SLO mapped to many of the courses is "Students will distinguish

between and demonstrate the ability to correctly use different HVAC/R trade tools and meters." This outcome indicates an extremely important skill that must be possessed by an HVAC technician as anyone in the field may tell you. The last two SLO's dealing with safety and the ability to compare and categorize components of typical Refrigeration system are properly linked and are quite important to poses for our students to have. Assessment methodologies for these Program SLO's are comprised of written exams as well as practical exams were students actually trouble shoot and repair mock up apparatuses with preset faults in order to assess the students acquired skills.

Part III: Questions Related to Strategic Initiative: Improve Communication, Culture & Climate

Goal: SBVC will promote a collegial campus culture with open line of communication between all stakeholder groups on and off-campus.

SBVC Strategic Initiatives: Strategic Directions + Goals

	Does Not Meet	Meets	Exceeds
Communication	The program **does not identify** data that demonstrates communication with college and community.	The program **identifies** data that demonstrates communication with college and community.	In addition to the meets criteria, the program **demonstrates** the ability to communicate more widely and effectively, **describes** plans for extending communication, and provides data or research that **demonstrates** the need for additional resources.
Culture & Climate	The program **does not identify** its impact on culture and climate or the plans are not supported by the data and information provided.	The program **identifies and describes** its impact on culture and climate. Program **addresses** how this impacts planning.	In addition to the meets criteria, the program provides data or research that **demonstrates** the need for additional resources.

Communication, Culture & Climate:

Describe how your program communicates its services, goals, and achievements to the campus and to the Community (outreach, events, website, campus emails, flyers, etc.).

The department has been proactively involved in outreach activities by having our Faculty visit local high schools such as Sierra and Middle college and presenting our program to create a pathway for students from secondary education to our program to provide them the opportunities to enter a great high earning career and to explain the possible opportunities provided to them by obtaining their certification. We have seen an uptick in enrollment in our morning class sections mentioned above because of this activity since high school graduates tend to be able to attend school within that time slot. The department has also created brochures to give an overview of the program with SBVC and the advantages it will give prospective students to attend our college be outlining the programs vast industry reach. There has also been on campus events such as High School career day events, Winterfest, and any and all such events by showcasing different student projects as well as our lab equipment and trainers that are included within our programs. High school students have toured our campus and our faculty have been instrumental in showcasing our lab facility and demonstrations of actual equipment system repair and installation as well as a brief presentation of the program and to illustrate the possible opportunities that potential graduates can have from working as a technician in the field doing installation, maintenance, and repair to having their own HVAC/Refrigeration business. The department actively seeks to be very visible and present at all on

campus and off campus events to promote SBVC and to be in line with the college goal to promote a sense of community and solidarity within the campus and embrace diversity (students, faculty and staff). HVAC/R department is also available on the San Bernardino Valley College website.

Describe how your program seeks to enhance the culture and climate of the college.

To promote a sense of community solidarity within the campus and embrace diversity between students, staff and Faculty, the department continuously seeks to collaborate with other departments having interdisciplinary common skills such as welding, auto body, Aeronautics, and Electricity to enhance and promote student knowledge of these cross disciplinary skills and to support their HVAC/R equipment as well as to create student projects that would utilize all of the skills from the departments that mutually benefit everyone involved also in promoting the CTE programs to local high school feeder schools as well as local businesses that would utilize all the skills of our various graduates from all our CTE trades mentioned above. This cross promotion of our various CTE programs with strong interdisciplinary skills serves to expand and enhance local business and community awareness of the College.

Describe one or more external/internal partnerships.

We prepare our students for the work force under the advisement of our advisory committee and the employment needs as reflected by the Refrigeration Service Engineers Society (RSES), the North America Technician Excellence (NATE) organization, the Environmental Protection Agency (EPA) under the Clean Air Act, and the Employment Development Department (EDD) of California. In fact, four of our Faculty are members of RSES and Nate and are teaching the approved curricula of these industry recognized Associations within the program. We also have an agreement with the Mountain View Power Plant for a tour of the plant to show our students what that job entails. Cooling towers for the water used in the generation of electrical power is an important part of the co-generation systems used at this natural gas and steam power plant. In addition, ABM a national building maintenance company as well as Clima-Tech Air, a locally based regional HVAC/R company regularly hire our students as interns in apprenticeship positions to help prepare them to become full field technicians. Our Faculty actively network with local HVAC businesses and the outfits they work with to also provide pathways and possible employment opportunities. Currently, The Gas company has approached us to partner with them so that our students can support their appliance repair division and would consider internship opportunities. As of Friday, March 14, 2019, we are in the negotiations of an MOU with them. We have also internal partnerships with the Welding department since we have common welding lab uses with them and we utilize their equipment to teach the HVAC/R-007 class for copper piping and other sheet metal types of welding. We have also rebuilt and refurbished small refrigerators and coolers to be used by other departments within our division. All of the preceding actions align directly with the colleges goal to expand and enhance local business and community awareness of the College and to promote a sense of community and solidarity within the campus and embrace diversity (students, faculty and staff)

What plans does your program have to further implement any of these initiatives?

The HVAC/Refrigeration department will continue to establish partnerships with local community businesses related to the field to promote SBVC and to offer them potential skilled employees from our graduate pool as well as provide our students with internship opportunities at these local businesses for our students to gain field experience and thus create a pathway and a transition

from their post-secondary education to the market place. In addition, the department will promote inter departmental partnerships especially with the welding department as described above and would like to further connect with the Machining and Aeronautics departments to include, within our curriculum, sheet metal fabrication of particularly ducting systems since the demand for this skill will increase drastically since a new building code requirement for residential structures will be required to install Sheet metal ducting instead of the Flex ducting currently being used. The HVAC department will also work closely and coordinate with the electricity/Electronics department since the Electrical circuit relay controls and power systems are part of our curriculum and the introduction of variable Frequency Drive technology to control compressors within A/C systems have been introduced and are also being taught in the Electricity Department as part of their industrial controls courses.

IV: Questions Related to Strategic Initiative: Maintain Leadership & Promote Professional Development

Goal: SBVC will maintain capable leadership and provide professional development to a staff that will need skills to function effectively in an evolving educational environment.

SBVC Strategic Initiatives: Strategic Directions + Goals

	Does Not Meet	Meets	Exceeds
Professional Development	The program **does not identify** currency in professional development activities.	Program **identifies current avenues** for professional development.	In addition to the meets criteria, the program shows that professional development has **impacted/expanded** the program and **demonstrates** that the program is positioning itself for growth.

Professional Development:

1. Discuss the ways that members of your department maintain currency in their field (conferences, workshops, technical trainings, etc.).

All of the HVAC/R Department Faculty attend HVAC/R Conferences on a semi-regular basis. One in particular is the RSES (Refrigeration Service Engineers Society) National Conferences. They are held in different locations Nationally each year. Another is the National HVAC/R Educators and Trainer Conference. Yet another conference that is usually attended is the HVAC/R Economizer conference. All of these conferences are designed to introduce the newest concepts and standards being adopted by these nationally recognized bodies that set the standards of the industry thus ensuring that our Faculty are up to date with all industry standards. In addition, two of the faculty possess the North American Technician Excellence (NATE) certification which needs to be recertified periodically to keep current in the industry and they have the ability to certify students, by being a testing site for the North American Technician Excellence (NATE) organization. In addition, most of the Faculty are certified by the Refrigeration Service Engineers Society (RSES) are certified to proctor examinations that would help students attain their RSES certifications as well. In addition, Faculty is routinely trained on any

new training equipment acquired by the department in order to facilitate the learning experience to the students.

2. Identify the professional organizations that your department and/or department members belong to and how those organizations meet professional development parameters.

As mentioned previously, The two largest and most nationally recognized organizations setting industry standards in HVAC/Refrigeration field are the North American Technician Excellence (NATE) to which two of our current faculty members are part of and certified with. The Faculty also maintain their certifications as they need to be recertified every five years within that organization. The other organization being the RSES (Refrigeration Service Engineers Society) of which at least four of our Faculty are members of. The current president of the local chapter of RSES is one of our Adjunct HVAC/R instructors, Chris Duwel, CMS. Meetings are held regularly on our Campus comprised of our faculty, industry professionals, and students as well as faculty and students from Riverside City College and the Center for Educational Training Colton Campus, to discuss the latest industry trends as well as regulations and technologies to be implemented and adopted. Guest speakers from industry leading manufacturers are also invited to present their systems on a regular basis. In addition, any new EPA standards pertaining to refrigerant gasses recovery and replacement regulations and updates are strictly followed and monitor to be included within our curriculum. These activities keep our program current and up to date with latest industry standards and technologies.

3. Discuss specific ways faculty and staff engage in professional growth (i.e. attend or present at conferences, establish training opportunities with other community colleges). Include future opportunities that are planned by faculty and staff. Discuss how professional development has impacted/expanded the program.

We offer many opportunities for our staff to engage in professional growth. One very large one is the fact that we have the RSES (Refrigeration Engineers Society's Arrowhead Chapter) training meetings held on this campus on a monthly basis, usually in the Library Viewing room. The current president of this group in one of our Adjunct HVAC/R instructors, Chris Duwel, CMS. We have guest speakers on a regular basis and the subjects vary widely. We also invite students to this function and encourage them to join this group. We normally have students from RCC (Riverside Community College), a couple of trade schools such as: CET (Center for Educational Training) Colton Campus and others. This also has helped our program in that it gave us recognition and we've attracted potential students into our program because they saw the validity and its strength along with the Faculty experience that our program provides them.

We also hold the CARSES (California-Arizona RSES meetings here. This group is represented in California, Arizona, Hawaii, and Nevada. The current president of this group is another one of our Adjunct HVAC/R instructors, Phillip Lawton. In addition, Phillip Lawton as well as Hussein Aziz are certified NATE technicians and Particularly Philip is able to proctor the NATE certification examinations to our students so that they can get certified.

V: Questions Related to Strategic Initiative: Effective Evaluation & Accountability

Goal: SBVC will improve institutional effectiveness through a process of evaluation and continuous improvement.

SBVC Strategic Initiatives: Strategic Directions + Goals

	Does Not Meet	Meets	Exceeds
Mission/ Statement of Purpose	The program **does not have** a mission/ statement of purpose, or it **does not clearly link** with the institutional mission.	The program **has** a mission/statement of purpose, and it **links** clearly with the institutional mission.	
Productivity	The data **does not show** an acceptable level of productivity for the program, or the issue of productivity is not adequately addressed.	The data **shows** the program is productive at an acceptable level.	The program functions at a highly productive level and has planned for growth as appropriate.
Relevance, Currency, Articulation	The program **does not provide** evidence that it is relevant, current, and that courses articulate with CSU/UC, if appropriate. Out of date course(s) that were not launched into Curricunet by Oct. 1, 2017 may result in an overall recommendation no higher than Conditional.	The program **provides** evidence that the curriculum review process is up to date. Courses are relevant and current to the mission of the program. Appropriate courses **have been articulated** or transfer with UC/CSU, or **plans are in place** to articulate appropriate courses.	In addition to the meets criteria, the program **discusses plans** to enhance current course offerings that link to student/community needs and positions the program for improved student outcomes.
Challenges	The program **does not incorporate** weaknesses and challenges into planning.	The program **incorporates** weaknesses and challenges into planning.	The program **incorporates** weaknesses and challenges into planning that demonstrate the need for expansion.

Mission and Purpose:

San Bernardino Valley College maintains a culture of continuous improvement and a commitment to provide high-quality education, innovative instruction, and services to a diverse community of learners. Its mission is to prepare students for transfer to four-year universities, to enter the workforce by earning applied degrees and certificates, to foster economic growth and global competitiveness through workforce development, and to improve the quality of life in the Inland Empire and beyond.

What is the mission statement or purpose of the program?

The Mission Statement of the HVAC/R Department is to provide a quality, intensive curriculum designed to prepare students to be employed at an introductory level in the fields of Heating, Ventilation, Air Conditioning and Refrigeration (HVAC/R). The program offers a Refrigeration and Air Conditioning Certificate as well as an Associates' Degree option with the same title.

Our department has recently resurrected the courses that are recognized and sanctioned by a very important national industry organization called **Refrigeration Service Engineers Society (RSES)** which is also internationally recognized. These courses also serve to help our students attain journeyman level certifications recognized by **RSES** which would make our students more marketable for today's job market. Additionally, our department continues to actively engage with our local high schools as well as with **Regional Occupational Programs (ROP)** which have programs that articulate with ours. We also prepare students to transfer to a number of public and private universities to further their study in the various fields of HVAC/R and **Mechanical Engineering** fields. Our students excel because we provide them with the skills and knowledge necessary to succeed in business, industry, and their chosen profession in this multicultural society. We want our students to succeed.

How does this mission or purpose relate to the college mission?

The HVAC/Refrigeration program mission correlates and parallels the college mission. We want our diverse community of learners to succeed! We provide our students a hands-on learning experience to accompany their ability to understand theory, the ability to think critically, and the capacity to apply that knowledge in a real-world setting. Our students do very well because we provide our diverse student population with quality training, skills and knowledge necessary to succeed in business, industry, and their chosen professions in a multicultural society and to become an asset for our community. The following named former students are graduates of our refrigeration program. Hussein Aziz, owns Clima-Tech Refrigeration HVAC/R company and teaches for us as an adjunct faculty member. Phil Lawton works in HVAC/R at various Kaiser Hospital sites as well as the Gas company. Phil is also the President of Region 15 of the RSES. As well as being NATE certified and able to proctor examinations for NATE.

Productivity:

Provide additional **analysis and explanation** of the productivity data and narrative in the EMP summary if needed. Use data from charts (FTEs; Enrollment; FTFE and WSCH per FTFE). Explain any unique aspects of the program that impact productivity data, for example, Federal Guidelines, Perkins, number of workstations, licenses, etc.

Analysis of the Productivity data from the Education master Plan reflect that our enrollment had plateaued from 2013 to 2015 and then dipped in the years 2015 and 2016 but has then surged and surpassed levels previously attained by an impressive14% over the previous year and continues to increase due to class section expansion in daytime slots in order to capture that pool of students that historically where evening only students. The FTES improvement is also due to the hiring of the full-

time faculty the previous year which enabled him to bring in his vast HVAC experience to the field and to better coordinate and reduce department inefficiencies. FTEF has also increased warranting the hiring of the Full time Faculty since this department has not had a full time Faculty in over 9 years. In fact overall program performance numbers have improved despite the Full timer only being hired 4 semesters ago.

Student Success rate has stabilized to a realistic average of 83% reflecting assessment accuracy. However, Retention has markedly increased to a phenomenal 96% and returned to previous levels which align with consistent SLO data showing high success rates. This also due to program efficacy and the updated state of the art training equipment introduced in the program.

Because of the lab intensive and hands on nature of the HVAC/refrigeration program, productivity will have a limit that can be reached because of the number of Laboratories and the number of stations that we have. We only have one lab room available in which all lab classes are conducted. In addition, the number of equipment and trainers available in the labs due to space constraints limit the cap rate for class size to 20 in order to provide a more quality based teaching of this intensively hands on program. Moreover, more sections of the beginning classes were offered in the morning time slots as discussed earlier. As a result, the Weekly Contact Hours (WSCH) to FULL TIME Equivalent Faculty (FTEF) average has continuously dropped reaching 296 which tends to be low compared to College average but is quite good considering the Lab intensive nature and the lab facility and equipment availability that we possess as well as student safety concerns.

The Content Review Summary from Curricunet indicates the program's current curriculum status. If curriculum is out of date, explain the circumstances and plans to remedy the discrepancy. (NOTE: If the report is inaccurate, contact Mary Copeland, Co-Chair, Curriculum Committee, (mcopel@valleycollege.edu) or Kay Dee Yarbrough, Administrative Curriculum Coordinator, (kyarbrough@sbccd.cc.ca.us) for updated information.

We missed the deadline to launch these classes, high-lighted in red, however, we plan on a remedy for that problem in the up-coming weeks.

Applied Technology, Transportation & Culinary Arts				
Heating, Ventilation, Air Conditioning and Refrigeration (HVAC/R)				
	Course	**Status**	**Last Content Review**	**Next Review Date**
	HVAC/R 001 HVAC/R Fundamentals	Active	11/19/2012	11/19/2018
	HVAC/R 002 Domestic Mechanical Refrigeration	Active	11/19/2012	11/19/2018
	HVAC/R 003 Commercial Mechanical Refrigeration	Active	11/19/2012	11/19/2018
	HVAC/R 004 Electrical Fundamentals for HVAC/R	Active	11/19/2012	11/19/2018
	HVAC/R 005 Commercial Electric for HVAC/R	Active	11/19/2012	11/19/2018
	HVAC/R 006 HVAC/R Air Distribution Systems	Active	11/19/2012	11/19/2018
	HVAC/R 007 Welding for HVAC/R	Active	11/19/2012	11/19/2018

	HVAC/R 050C Compressors, Condensers and Cooling Towers	Active	12/07/2015	12/07/2021
	HVAC/R 051C Heating Fundamentals	Active	12/07/2015	12/07/2021
	HVAC/R 052C Heating Transfer & Distribution	Active	12/07/2015	12/07/2021
	HVAC/R 055C Gas Heating	Active	12/07/2015	12/07/2021
	HVAC/R 056C Hot Water Heating	Active	12/07/2015	12/07/2021
	HVAC/R 057C Tools, Controls, And Troubleshooting	Active	12/07/2015	12/07/2021
	HVAC/R 060C Troubleshooting Refrigeration and A/C Electricity 4	Active	12/07/2015	12/07/2021
	HVAC/R 061C Troubleshooting Refrigeration and A/C Electricity 5	Active	12/07/2015	12/07/2021
	HVAC/R 062C RSES Electricity and Electricity Lab for HVAC/R Technicians	Active	12/07/2015	12/07/2021
	HVAC/R 065C RSES Technical Institute Heat Pump Training Course Volume I	Active	12/07/2015	12/07/2021
	HVAC/R 066C RSES Technical Institute Heat Pump Training Course Volume II	Active	12/07/2015	12/07/2021
	HVAC/R 067C RSES Technical Institute Training Manual 3 Volume I	Active	12/07/2015	12/07/2021
	HVAC/R 068C RSES Technical Institute Training Manual 3 Volume II	Active	12/07/2015	12/07/2021
	HVAC/R 098 Refrigeration Work Experience	Active	09/24/2018	09/24/2024

Articulation and Transfer

List Courses above 100 where articulation or transfer is **not** occurring	With CSU	With UC
NONE		

Describe your plans to make these course(s) qualify for articulation or transfer. Describe any exceptions to courses above 100.

N/A

Currency

Review all mentions of your area in the catalog. Is the information given accurate? If not, briefly identify the areas that will be revised.

All of the courses listed in the SBVC College Catalog are up to date. All of them are currently being offered each semester. In addition, Our Refrigeration Advisory Committee reviews our course outlines of record during our advisory committee meetings and as of our last meeting there are no discrepancies to report in the program. Department faculty routinely submit course outline changes to the curriculum committee when the advisory committee sees the need for change to keep up with industry and/or Environmental Protection Agency (EPA) standards.

If any courses are no longer offered, list them here. (Include Course # and Title of the Course). If the information is inaccurate and/or there are listed courses not offered, how does the program plan to remedy the discrepancy?

Follow the link below and review the last college catalog data.
http://www.valleycollege.edu/academic-career-programs/college-catalog.aspx

If your information needs updating, contact Kay Dee Yarbrough, Administrative Curriculum Coordinator, (kyarbrough@sbccd.cc.ca.us).

For all courses that show overdue for content review from the table above, they will be reviewed and, if needed, modified during this current semester.

Challenges:

Referencing the narratives in the EMP summary, provide any additional data or new information regarding planning for the program. In what way does your planning address trends and weaknesses in the program?

Again, the Facilities appear to be a large roadblock to expansion of multiple classes, especially the Lab since the program is only afforded one Laboratory room and one Lecture room. All of the classes each have a lecture and a lab component and so in order to simultaneously offer classes for the popular evening slots we must alternate and switch out classes were one class will be in Lab while the other in lecture and vice versa. We have used also “generic” classrooms in other locations on campus; one being in the Business Building across campus, however, it is difficult to keep moving our equipment around for demonstrations. Thus, lack of space and extra lab space stymies and impedes growth. We remain hopeful and are scheduled to have a new Applied Technology Facility in a few years and that should alleviate most of the issues. We have no direct control over that. We have problems with hiring adjuncts, due to them working in the industry, and there is a shortage of technicians already. We are working in partnership with a couple of HVAC/R Companies to have them allow a couple of their technicians to at least do substitute teaching for us.

VI: Questions Related to Strategic Initiative: Provide Exceptional Facilities

Goal: SBVC will support the construction and maintenance of safe, efficient, and functional facilities and infrastructure to meet the needs of students, employees, and the community.

SBVC Strategic Initiatives: Strategic Directions + Goals

	Does Not Meet	Meets	Exceeds
Facilities	The program **does not provide an evaluation** that addresses the sustainability of the physical environment for its programs.	Program **provides an evaluation** of the physical environment for its programs and **presents evidence** to support the evaluation.	In addition to the meets criteria, the program has **developed a plan** for obtaining or utilizing additional facilities for program growth.

Facilities:

Provide an evaluation of the facilities in your area and their impact on the educational environment for your students (classroom facilities, technology, space needs, maintenance issues, etc.). Address sustainability of the facility (including technology needs).

As mentioned in previous sections, the Single Laboratory for HVAC/R is very limiting to class offerings. A second Lab is necessary to expand class offerings as we cannot hold two classes simultaneously in one lab. At this point we are still using the Lecture portion on one day and the Lab portion on the second day. We fit another class in the opposite time slot to achieve maximum usage of that Lab time. This is currently being done for all evening and Saturday classes.

We continue to need enclosed storage space and it difficult to store trainers outside in the elements without destroying them. Some of our smaller trainers are being stored above the Division Tool Room and are not easily accessed. Maintenance of the Lab and Lecture rooms are difficult as both of these facilities are scheduled to be replaced.

VII: Previous Does Not Meets Categories

Listed below, from your most recent Program Efficacy document, are those areas which previously received "Does Not Meet."

Address, in **DETAIL AND WITH SPECIFIC EXAMPLES**, how each deficiency was resolved. If these areas have been discussed elsewhere in this current document, provide the section where these discussions can be located.

Pattern of Service: The program meets an effective pattern of service in that it permits students to maintain full-time day jobs through the offerings of evening and Saturday courses. This is a great opportunity for individuals with day-shift positions; however, it seems this may create a barrier for individuals who work the nightshift and for single parents. This raises increased concern due to the fact that the female student body is severely underserved in this area. SBVC does provide services to many single parents, specifically single mothers. The children's center offers daycare services but only during the day. The lack of day courses may be one huge contributing factor as to why the female population is so underserved in this program.

Response: The HVAC/R Department has since totally changed the class offerings to include morning and afternoon classes to students. We first began with Afternoon HVAC/R-004 classes; Fundamentals of Electricity for HVAC/R. Last Fall, we began the Morning HVAC/R 001 classes; Fundamentals of Refrigeration. Since this time slot had not been attempted in over 20 years, it was a slow start. We promoted it very well and this Spring 2019, the initial enrollment was at 27. We had a "wait list" for that class. The Morning HVAC/R 002 class; Domestic Refrigeration, failed to achieve minimum enrollment and was cancelled. We replaced it with a new class of the "waitlist students" from HVAC/R 001 and did a late start. This worked rather well and we ran the class with a lower than minimum enrollment and it is holding its' own. Several of the students could ONLY attend during this time because of work schedules. This did not immediately affect the female population however, as it is just now becoming known. These classes, in the new time frame, are scheduled to continue into the Fall of 2019 and the foreseeable future.

Accomplishments: The program focuses on more potential strengths and goals here instead of actual accomplishments. They have consistent and increased FTES trends, high student success rates, outreach efforts to attract more female students, and are working on a grant, but this is not mentioned here.

Response: The HVAC/R Department has been able to use Strong Workforce Grants and Perkins Funds to help with the program. With the addition of one full-time Faculty, we now have increased participation in outreach programs, programs such as Winterfest and high school Career Days.