**Academic Program Review: Self-Study**

***Instructions:*** *The following pages will guide your submission of your academic program review self-study. Please type your responses directly into the document. The completed self-study instrument and all attachments must be submitted to the Academic Program Review Coordinator and your Academic Dean by September 1.*

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| **Program Under Review** |
| Degree(s): AAS Diesel and Heavy Equipment Technology |
| Certificate(s): Diesel and Heavy Equipment Technology |
| Contact Information for lead on Self-Study:  Name: Garrett Hurt  Campus: SPC  Phone: 5310  Email: [garrett.hurt@centralaz.edu](mailto:garrett.hurt@centralaz.edu) |
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| **Program Description, Vision and Outcomes** |
| What is the description of the program as stated in the current CAC catalog:  This degree prepares students for employment as diesel and heavy equipment technicians with an array of career opportunities within the industry. A typical graduate will seek employment with an equipment dealer, equipment rental company, or a heavy highway construction company. Students receive training applicable for serving and repairing all types of diesel equipment. |
| Does your program have any other written mission or vision statements which do not appear in the catalog? If yes, please write them below and indicate where they appear.  We do not have a program mission statement at this time. But we will soon have one. |
| Describe how the program’s description, mission and/or vision aligns with the College’s Mission:  **Ensure broad access to high-quality innovative educational programs, services and training opportunities for Pinal County residents**    Became nationally accredited in 2013. The accreditation was hinged on our program updating our training aids to meet industry standards. These training aids were purchased on the recommendation of the advisory committee. With new training aids we also had to modify our curriculum to meet the 2013 standards that are set forth by the accrediting body. AED (Associated Equipment Distributors)  **Improve student retention, persistence, completion and job placement**  100% of our students who graduate obtain employment. Most of our students work between their 1st and 2nd year. Internships play a big part in student retention because they see the potential. They come back for their 2nd year knowing that when they graduate their pay with increase significantly.  **Ensure a safe, sustainable environment that promotes learning, communication, diversity and satisfaction among students, faculty and staff**  The industry that these students are preparing for believe that safety in #1. We ensure that we teach and hold our students accountable for their safety. Team work is also a major focus of the program. Students are put in situations where they must work outside their comfort zone and learnt to get along with everybody.  **Enhance our physical and technological infrastructure to support changes in the learning and work environment**  Computer diagnostics have become a priority for young technicians today. We were able to secure 20 lap top computers that students are required to use for any lab assignment they are given. Our classroom have been updated with new tables and chairs and instructor stations that are not make shift.  **Expand partnerships with Universities to provide advanced degrees to Pinal County residents**  There are no universities in Arizona that offer advanced degrees in Diesel Technology.  **Obtain approval from the state and regional accreditation body to offer baccalaureate degrees at CAC**  NA  **Optimize fiscal resources that support the needs and expectations of students and the community**  We have a strong advisory board that does everything that they can to help us with our needs.  They provide us with:  Loaner equipment that is has up to date technology.  Offer free training for our instructors to keep current.  Computer software and licenses to access service manuals and technical data  **Contribute to the economic vitality, workforce development, and job training needs of Pinal County and surrounding region**  Placed over 42 students into the workforce what make an estimated combined $2.1 million per year who contribute to society. |
| What are the student learning outcomes for the degree or certificate as currently indicated in ACRES:  (Application Level) Demonstrate the ability to work safely according to OSHA regulations.  2. (Comprehension Level) Explain the fundamentals of diesel engine and fuel system design and operation used in Heavy Equipment.  3. (Application Level) Diagnose and repair malfunctions related to diesel engines and fuel systems used in Heavy Equipment.  4. (Comprehension Level) Explain the fundamentals of power train and chassis system design and operation used in Heavy Equipment.  5. (Application Level) Diagnose and repair malfunctions related to power train and chassis systems used in Heavy Equipment.  6. (Comprehension Level) Explain the fundamentals of hydraulic, electrical and electronic systems used in Heavy Equipment.  7. (Application Level) Diagnose and repair malfunctions related to hydraulic, electrical and electronic systems used in Heavy Equipment.  8. (Application Level) Operate Heavy Equipment in accordance with the operator's handbook.  9. (Application Level) Recondition Heavy Equipment in accordance to the manufacturer's service and repair manual. |
| Are the outcomes from your program determined or influenced by any external organization, agency, or accreditor? If so, please explain.  SLO’s are solely derived from the AED Technical Standards review committee. The committee is made up of representatives from major equipment manufactures like, Caterpillar, John Deere, Komatsu, Bobcat and Case. There are also service managers from the equipment dealers who sell and service the equipment. Instructors are also present in these review sessions. Garrett Hurt served on the 2015 Technical Standard Review Committee in October 2014. |

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| **Program Enrollment and Graduation Trends** |
| Summarize the program enrollment data for the past 5 years in the chart below:   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Degree/Certificate | 2014-15 | 2013-14 | 2012-13 | 2011-12 | 2010-11 | |  | 82 | 103 | 91 | 91 | 112 | |  |  |  |  |  |  | |
| Discuss and explain the factors influencing the enrollment trends:  Keep in mind that the enrolment numbers are duplicated head count number. An average size cohort of student is usually about 16 students. After the first semester that number falls to about 12. After the 2nd semester it falls to 10. By the time graduation comes usually 5 graduate with their classmates.  This year Fall 15 we have 32 new freshman. Prior to that the largest class was 22.  Our enrollment is stronger than ever. All classes are at or near capacity. They are also way up from the previous 5 years. The last review that was done in 2009 we reported a sharp decline. Two years ago we partnered with Florence and Poston Butte High schools and we offered a Diesel program for student who wanted to take some type of “shop” class. We started out with 6 students and today we have 11. Of the 6 that started two years ago 3 are enrolled full time and are on track to graduate either in spring 16 semester or fall 16 semester. I also know that high school CTE directors are reaching out to us and bringing interested students here for tours. There is also a national campaign led by Mike Rowe, from Dirty Jobs that encourage students who are not University bound to go learn a trade. |
| How has the program typically recruited students and marketed the program:  Visiting local high schools and Maricopa county vo-tech schools. Don Flewelling sits on an advisory committee for West-Mech. They are equivalent to CAVIT. During the FFA field day that our Ag. Department hold annually we make it a point to leave our labs open and invite students in to see what we’re doing. We get our advisory board members to sponsor students that they have recruited for employment. Word of mouth is also a major contributor. Our program is very well known. 1000’s of students have been through our division and the Diesel Department has always been labeled the flagship department. This year we have several student who are here because either their dad, uncle, brother or friend had been through our program. |
| Summarize the program graduation rate trends for the past 5 years in the chart below:   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Degree/Certificate | 2014-15 | 2013-14 | 2012-13 | 2011-12 | 2010-11 | | Degree | 9 | 4 | 10 | 3 | 3 | | Cert | 4 | 0 | 5 | 3 | 1 | |
| Discuss and explain the graduation trends. What efforts has the program made to help students achieve completion?  The program makes every effort possible to see students graduate and start a career. Our graduation rate seems low compared to the enrollment. Some students find employment during while they are going to school and opt to not finish the program because their employer needs them at work. We have had several student complete all the requirement for the certificate and not apply for graduation because the say they are going to continue to work on their degree. Some finish some do not. We also have students how come to only take a class or two because their employer needs them to learn one thing. |

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| **Program Curriculum:**  *Submit a completed Curriculum Comparison Chart along with the self-study, comparing the CAC program curriculum to three similar programs, for each Degree and Certificate discussed in this self-study. Ideally compare to other Arizona programs, and out of state if necessary.* |
| Using information gained from your curriculum comparisons, discuss the strengths and weaknesses of the current program curriculum for each degree or certificate.  We are the only accredited Diesel program in the state of Arizona. The only other program that is comparable to ours in the Think Big Caterpillar program that is offered through Mesa Community College. All the Diesel related classes are taught at Empire Southwest training center in Mesa and the Gen Ed’s are taught at MCC. Empire did not see the value in being accredited when they are the leader in writing the standards. Their Diesel program is much stronger than ours only because Empire is the largest Caterpillar Dealer in the US. They have the resources right in their back yard. We teach to the same standards as they do, but they have all the latest and up to date training equipment. Millions of dollars’ worth. On the other side of that, our program is strongly supported by Empire as well. As compared to the other programs we feel as if we are equal to them based that they too are accredited through AED as well. We all teach to the same standard. |
| Discuss how the program gets feedback on its program and curriculum from external sources, suchas advisory boards, employers, articulation task forces, accreditors, etc.  Advisory Boards- The program leaders have multiple interactions and meeting every year with its advisory board members to discuss the changing economy, job opportunities, and industry trends.  Employers- Employers keep in contact with Instructors for recruitment, new job opening, and new equipment fundamentals.  Accreditors- The AED conducts annual and surprise audits to ensure proper training is being upheld and that we are still teaching to the standards |
| Indicate any external accreditations which the program has. Are there any available accreditations which the program does not have, but maybenefit from seeking?  We are accredited with AED. There are no other available accreditation agencies. |
| Discuss how the program supports current or future needs for the job market in Pinal County, the state of Arizona, and/or the United States.  Diesel Technicians are in high demand all over the country. It’s estimated that there will be a shortage of 10,000 techs a year for the next 12 years. Anyone who graduates from this program will have a job for the rest of their life. Recently many of our students have remained in Pinal County and have found high paying jobs right here. The Diesel Truck shops along 10 near Arizona City and Eloy have been hiring our students recently. I believe that there are 5 recent grads working for these truck shops. |
| For degree programs, identify any specific in-state baccalaureate programs into which this program is particularly suited for transfer  The A.A.S. degree meets the requirements for the major transfer credits of the B.S. in CTE Ed. at NAU. |
| Indicate any articulation agreements in place for degree graduates.  N/A |

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| **Program Specific Resources:**  *In this section please focus on program specific resource. You may but do not have to discuss resources available to the college at large such as Blackboard, the Learning Centers, Library, etc. However, if these resources are impacting your program in a positive or negative way which you would like to discuss, please do so.* |
| Discuss the adequacy of the financial and budgetary resources available to the program over the past 5 years:  The college and the Carl Perkins grant have been quite generous to our program over the past 5 years. Both help secure the training aids that we needed in order to become accredited. Our instructional Supply budget was recently increased due to the inflation since it was last increased in 2001. Right now the program is in good shape. |
| Discuss the adequacy of the human resources available to the program over the past 5 years:  Right now we have 3 full time faculty dedicated to the Diesel program and one person who splits time with the HEO program. If we continue to grow as expected we may need to hire 2 adjunct faculty members. Although it is hard to find qualified people who want to come and teach a night class after they just finished a 10 hr. day working. Finding qualified people who can work during the day is might near impossible. The good one are working. |
| Discuss the adequacy of the technological resources available to the program over the past 5 years:  We have unlimited technological resources available to the program thanks to John Deere and Caterpillar. They have given us access to whatever we need. |
| Discuss the adequacy of the physical (building space, classrooms, labs, etc) resources available to the program over the past 5 years:  Over the past 5 years our classrooms have been updated with new tables and chairs and instructor stations. If we continue to grow like we project we might have to build a new class room. |
| Discuss the adequacy of the academic support resources available to the program and its students over the past 5 years:  The program has a CTE mentor/tutor, Holly Milligan) to support the students in their Individual needs. There are also many recourses available to all CAC students (learning center, tutoring, library, etc.). |
| Discuss the adequacy of the student support resources available to the program and its students over the past 5 years:  Students in the program are encouraged to take advantage of all support resources such as Trio and Title V. |

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| **Program Effectiveness** |
| Describe how you measure the success of degree and certificate program graduates in achieving the degree and/or certificate program student learning outcomes. What data have you collected that indicates the level of student success of these outcomes? And According to the data, how well have students achieved these outcomes during the past 5 years?  When 100% of our students who graduate obtain a job and keep that job based on what they learned from us it’s quite obvious that they have done very well. As mentioned earlier there are several reasons why some students don’t graduate. Those that drop out of the program do so because they find out that being a Diesel Technician is not for them. |
| If you have data which indicates the degree to which students in the program are achieving the college’s Common Student Learning Outcomes please share and explain the data.  We have no data on how students achieve CSLO’s. However, we feel that when a student goes to work right after they graduate and is able to keep his job they have met the CSLO’s. We try and keep track of students who are out there in the work place. |
| How many program enrollees or graduates studied at an in-state baccalaureate level institution during the past 5 years? Put the data in the table below.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Degree/Certificate | 2014-15 | 2013-14 | 2012-13 | 2011-12 | 2010-11 | |  |  |  |  |  |  | |  |  |  |  |  |  | |
| If a degree is intended for transfer, or has transfer articulation agreements in place, indicate how the degree program supports students with continuing their education at CAC or other institutions.  N/A |
| Describe the level of success (via completion rates, GPA, etc.) the program’s prior students have achieved at transfer institutions.  N/A |
| If a degree or certificate is designed to lead directly into the workforce, describe the success of students in obtaining a job in the field of study upon graduation. Please provide any qualitative or quantitative data you have:  Every student that graduates from the program finds employment. The job placement rate for the past 5 years has been 100%. Even those who do not graduate are able to find jobs with the skills that they learned. A student who only takes the Engine and fuel system classes are able to find a job working on engines. The average starting salary for our graduates is $55,000 per year. We know of several students who graduated 4 to 5 years ago who are make $100,000 or more. |
| If your program serves to prepare a student for external certification or licensure of any kind identify the certification or license and the percentage of program graduates who earn/achieve it. Put data in the table below.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Licensure/Certification | 2014-15 | 2013-14 | 2012-13 | 2011-12 | 2010-11 | | Mobile Air Conditioning | 11 | 12 | 10 | 13 | 11 | |  |  |  |  |  |  | |

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| **Program Continuous Quality Improvement** |
| Discuss how the program has used learning outcome assessment results to improve instruction and/or student learning over the past 5 years:  Since the program became accredited we have aligned the learning outcomes with the standards to meet and/or exceed the industry standards. This ensures that students are being prepared to enter the work force. Students are assessed using two different methods. Written tests to assess their knowledge, and hands on competencies to ensure that they can do what will be expected of them when they become employed. If a student is unable to complete the task he is able to repeat until he does. Students who struggle are given the opportunity to come in during office hours and “open lab” hours to continue to work on meeting those competencies.  When several students are struggling with a certain competency then the instructor will change his approach or get another instructor involved to help explain. |
| Discuss how the program has used operational planning goals to achieve quality improvement over the past 5 years  Professional Development has been the major focus the past 5 years. Technology has been changing rapidly in our industry and the need to keep up with it is critical. We are fortunate that Empire Southwest Training Division has offered our instructors free training. Over the past 5 years we all have attended over 20 classes either face to face or online.  In 2008 we were unsuccessful in obtaining our accreditation because we lacked the needed equipment and training aid. It was written into the operational plans that year and the following 2 years. In 2013 we met our goal and received accreditation |
| Describe other ways the program has engaged in continuous quality improvement:  The program has built a great relationship with industry leaders such as the AED, Empire Southwest, Caterpillar and Vermeer SW Sales. Without their support our program would not be able to sustain itself. |

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| **Program Alignment with Institutional Goals:** |

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| **Program Alignment with Institutional Goals:**  *Describe how the program has directly or indirectly is helping the College achieve its current strategic goals.* |
| Over the past 5 years the Diesel program has had 42 graduates enter the workforce. We have provided an avenue for students to achieve the dream of getting a high paying job that will lead to a fruitful career. |
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