

Submission date: February 10, 2020

Program/s in this review: Diesel Power Technology

Specialized accrediting agency (if applicable): ASE Education Foundation

Campuses where the program is delivered: UAA

Members of the program review committee:

- Darrin Marshall, Chair, Assistant Professor
- Kelly Smith, Assistant Professor
- David Palecek, Assistant Professor

1. Centrality of Program Mission and Supporting Role (700 words or less)

Relevance of Program

The Diesel Power Technology program is housed within the Transportation & Power Division at CTC. The program works closely with the Automotive Technology, with 5 of the core technical courses (15 credits) in common between the 2 programs.

The core technical curriculum for these programs provides the foundational skills needed for the next generation of technicians. Through a variety of teaching techniques, we provide students with theory and practice in integrating information from the various diesel systems to develop and execute diagnosis and repair strategies of complex systems.

Because we are located in Anchorage, the hub for receiving and transporting goods throughout most of Alaska, the Diesel Power Technology curriculum is designed to ensure that students are exposed to all aspects of diesel powered trucks. However, the education and experience gained in the program is largely transferable to support oil, mining, tourism, fishing, and all segments of Alaska's economy. It is also the primary source of electricity for communities not serviced by the main power grid in Alaska.

Support to other academic programs

The Automotive Technology and Diesel Power Technology programs share 6 core courses, allowing flexibility in scheduling and faculty workloads, to ensure that program resources are leveraged in the best interest of students in both programs. The program also requires students to select a 3 or 4 credit course from the Welding & Nondestructive Testing Technology program. ADT students have the option to continue their academic career by pursuing their Bachelor of Science in Applied Technology Leadership. Additionally, all Automotive Technology AAS students take general education courses.

Partnerships with businesses or organizations

The Diesel Power Technology program has an active advisory committee, representing a wide variety of employers of diesel technicians. Many of these companies, or their local representative offer practicum placements for our students. The program hosts professional development for technicians through Cummins Northwest, Pacific Detroit Diesel, Eaton Corporation, Alaska Airport Rentals, Weaver Brothers, Carlyle Transport, Chugach Electric, and others. These manufacturers are a major source of engines,

transmissions, and other components needed to operate a successful program with an extensive hands-on technical lab component.

Work force development and employment opportunities

With a degree in Diesel Power Technology students have a wide variety of employment options. All students must complete a practicum before graduation which places them in a repair shop conducting repairs as an apprentice. Students can continue, and in time, become journeyman level technicians, leads, foreperson, or service managers. They also have the option to work in the parts industry, service advising, or education. 100% of our diesel students are employed before graduation.

Extramural support and funding of program

Cummins Corporation provides our students with access to their on-line service information and online technician training. The instructor-led training hosted at UAA and provided through Cummins Northwest, Pacific Detroit, and Eaton Corporation are made available to our students. This instructor led training also brings in industry members in which brings greatly needed awareness to our diesel program. Cummins has supplied a late model engine run stand and thousands of dollars of tools for our program.

High job demand

"The U.S. Bureau of Labor Statistics reported that employment of diesel service technicians and mechanics is projected to grow by 12 percent from 2014 to 2024, faster than the average for all occupations. The agency also said 67,000 technicians will be needed to replace retired workers, and 75,000 new mechanics must be added to meet additional demand by 2022."

Employers on our Diesel Power Technology Program Advisory Board regularly remind us that Alaska is not immune from the technician shortage, and may be more negatively affected due to geography and cost of living. The Alaska Department of Labor and Workforce Development projects of 176 annual employee openings for which students from this program are recruited. Additionally, 43% of the working diesel technicians are over 45 years old. This factor has the potential to exacerbate the technician shortage for the future, as an increasing number of technicians reach retirement. The capacity of the Diesel Power Technology Program at UAA is not sufficient to fill the current and future need for technicians.

2. Program Demand (including service to other programs), Efficiency, and Productivity (7 year trend; 1400 words or less)

Students and graduates from the Diesel Power Technology Program find employment in a variety of industries that utilize Diesel Engines. The primary focus of the program is trucking, but students also enter the marine, construction, mining, and other industries important to Alaska's economy.

On average, our automotive and diesel program has 55 students enrolled annually. Even if all students graduated and went to work as technicians, the numbers would be too small to fill Alaska's need in just one category of diesel technician positions.

The program is increasing our recruiting and retention efforts through our connections with local industry members and with diesel manufacturers to help increase our enrollment numbers and student success. We

have also created articulation agreements for several diesel related classes at King Tech, Wasilla High School, and Palmer High School automotive programs to create awareness and increase enrollment.

Through enrollment management initiatives, we have improved our efficiency (FTES/FTEF) over the past 7 years. All staff and faculty in the division participate in recruiting and retention efforts. The Transportation and Power Division director, faculty and Student Success Coach have been to high schools, competitions, and automotive/diesel events which seems to be having success. We have increased the number of students in each class and reduced the number of sections that are offered. Our Student Success Coach has been incredibly influential in keeping classes full, increasing our graduation rates, and streamlining our processes to decrease our dropout rate. Her efforts include an increase in program advising, which we are projecting to significantly increase the graduation rate over the next year. The automotive/diesel program is built with a team of motivated individuals and, through all of our efforts, I believe that we will continue to increase the efficiency of our program.

Graduation rates are an incredibly valuable number but I believe our graduation rates could be misread and maybe a bit misleading. Graduation rates for technical programs nationwide are typically lower. Our program mandates on the job training, which provides the ultimate in authentic learning experiences. Work experience is essential for maximum educational benefit in the automotive and diesel fields. We have many students that are employed by the first semester and the vast majority of students are employed by the 3rd semester. Unfortunately, many of the students stop or drop out for multiple reasons. Many opt for a paycheck now, rather than finish their education. Students start our program to get a job and a good paycheck and both of those goals can be achieved before graduation.

The Cost per SCH has consistently been decreasing and, in 2019, is now less than the tuition revenue. This trend should continue and potentially improve as we move forward. We have increased our recruiting and retention efforts, which should drive up total SCH, even with fewer course sections. The result to date has been an increase in class size and improved efficiency ⁽⁵⁾.

3. Program Quality, Improvement and Student Success (1500 words or less)

The Diesel Power Technology program at the University of Alaska Anchorage prepares students for high paying, high demand careers in the transportation repair and maintenance field. The program offers students the option of completing an Associate of Applied Science degree, or a 1-year Undergraduate Certificate. The Undergraduate Certificate core requirements are embedded in the AAS program. Five of the required core courses for the program are also required for the AAS in Diesel Power Technology, which gives both programs flexibility in scheduling to improve efficiency for both programs.

Specialized Accreditation

The UAA Diesel Power Technology program is accredited through the Automotive Service Excellence Education Foundation (ASE) Medium/Heavy-Duty Truck program. ASE Education Foundation accreditation begins with a program self-review conducted by program faculty in collaboration with the local industry advisory committee. When the program faculty and program advisory committee find that the program meets accreditation standards, an application package is submitted to ASE. Once ASE approves the application package, an Evaluation Team Leader (ETL) is assigned to the school and an on-site review is scheduled for a committee made up of the ETL and local industry representatives.

Following initial accreditation, the program completes a mid-term review at 2 ½ years and a re-accreditation process with an on-site accreditation team. The UAA Diesel Power Technology program is due to conduct a full ASE reaccreditation during the 2020-2021 academic year.

The self-review and external review analyze program alignment with ASE standards in accordance with areas deemed most important by a nation-wide advisory group made up of employers, manufacturers, educators, and consumers. The accreditation process, including alignment with ASE standards, ensures that program faculty and curriculum remain current and relevant to the industry needs. ASE requires every member of the faculty to achieve and maintain individual ASE certification in the area taught and to attend a minimum of 20 hours of technical update training in the field.

Innovative Program Design

In addition to academic awards, program faculty stress industry recognized certifications and the continuing education that students will need to stay relevant as they advance throughout their careers. The most recognized industry standard is individual technician ASE certifications. These certifications are often the difference in getting an interview for employment. Although the program incentivizes students to obtain ASE certifications while in the program, we have to rely on students to self-report. Therefore, it is likely that the data we have is incomplete. However, we do have documentation of 41 individual ASE certifications for our students from AY2013-AY2019.

Another industry certification that is important to many employers is EPA certification required by section 609 of the Clean Air Act for technicians who work on air conditioning systems. Since Fall 2016, students in the Diesel Power Technology program have had the option to take the test for section 609 certification in place their midterm exam. Over that time, 89 students out of 92, have received section 609 certification.

Because the program shares courses with the Automotive Technology program, students are able to access the online courses provided through Fiat Chrysler Automobiles. In the first full year of implementation, our students have completed 425 individual certifications. In addition to the certifications earned by the students, the online modules provide reinforcement of principles taught through classroom and lab activities. There is no cost to the program or students for access to these certification modules. Cummins Corporation online training modules have been made available at no cost to students in the program as well.

The program required practicum often leads to employer specific certifications for the student. For example, we currently have three students placed with Pacific Power Group (PPG). As a part of their practicum they will be starting their professional development for PPG. Although they currently report a desire to remain with PPG following graduation, the knowledge they gain will transfer with them anywhere in the industry.

Program Student Learning Outcomes Assessment

The program uses assessment strategies designed to determine student's preparation to succeed in the Diesel Power industry.

Success in achieving national certifications indicates progress in gaining knowledge of technical systems, choosing and properly applying diagnostic processes to determine if systems are operating within specifications, and to recommend and perform proper repair procedures.

The program utilizes faculty developed assignments to indicate sufficient progress in oral and written communications, and in quantitative skills to serve as a foundation for progression in their careers.

Faculty with responsibility for practicum supervision gather data from students and their on-site supervisor. These reports are important indicators of student achievement. Because they are collected in the context of actual industry settings, they are the most direct indication of student preparation.

Student Success

All members of the faculty participate in career and student advising, however, much of the academic advising is now within the purview of the student success coach. Largely due to the activities of our student success coach, we are projecting a sharp increase in graduation rates. Faculty and staff collaborate on several student success initiatives. These include annual job fairs, tool fairs, and alumni celebration barbecues.

4. Program Duplication / Distinctiveness (300 words or less)

The UAA Diesel Power Technology program is the only fully ASE Educational Foundation accredited program in Alaska. There are Diesel Technology programs at UAF and UAS. Each of the programs emphasizes different areas of diesel technology that make sense for their locality. None of the programs have enough capacity to fill the needs of the state in this area.

The UAA Power Technology degree has an emphasis on road transportation. With advisory committee input, the program recently added the only University of Alaska-linked commercial driver's license (CDL) program. The CDL addition gives our students a distinct advantage when entering industry.

5. Summary Analysis (500 words or less)

The Transportation & Power Division at UAA houses Welding & Nondestructive Testing Technology, Automotive Technology, and Diesel Power Technology programs. These programs provide valuable workforce development in high demand career fields. Enrollments are strong, and the programs enjoy strong partnerships with several vehicle and equipment manufacturers, as well as local business support. Each of the programs in the division is strong in their own right, but stronger because of inter-program cooperation and collaboration. Like much of UAA, the division has felt the budget contractions over the past 2-3 years. The division has lost staff positions, and one faculty position directly related to Diesel Power Technology. Through these actions, the programs have remained strong through collaborative efforts in course scheduling, recruitment, and retention efforts.

While the Diesel Power Technology program has a primary focus on over the road transportation industry (mostly busses and trucks) the program prepares students with skill sets that are readily transferable to any diesel-related field. Many of our students find career opportunities working with recreational vehicles, heavy construction equipment, power generation, and servicing equipment with unique purpose-based missions. Diesel related labor needs are mentioned thorough out the documents linked to the UAA Career and Workforce Development web page. The addition of the CDL sets the UAA Diesel Power Technology apart from every other diesel program in Alaska.

Our AAS graduates are well prepared to enter the workforce as technicians, and then to move from technician positions to lead or foreperson positions, and other related positions such as service writer or parts person positions. Employers tell us that they are experiencing difficulty in finding employees for each of these related positions.

Faculty and staff related to the Diesel Power Technology Program have worked as a team to improve efficiency over the past 7 years. As a result, student cost per credit hour is now less than program revenue. Program faculty are committed to keeping the program current as technology moves forward. Faculty are dedicated to several recruiting efforts that has the enrollment of the Diesel Power Technology Program on the rise while enrollment university wide is down.

Diesel Power Technology Program staff and faculty are committed to providing a quality education that enhances student career opportunities. Diesel Power Technology Program staff and faculty understand the gravity of what role they play to our local economy and student success. We are committed to self-evaluation through assessment processes including program accreditation through ASE Education Foundation. These programs continue to be recognized by industry partners, resulting in generous donations of equipment, tools, service information, and online training modules; each of these donations serves to enhance the learning process at a reduced cost to students.