

# Undergraduate Certificate in Diesel Power Technology

The Diesel Power Technology Undergraduate Certificate is designed to teach students the skills needed to be successful as technicians in the medium- and heavy-duty truck and equipment service industry. The undergraduate certificate may be completed in three semesters, which includes one summer semester of practicum. Laboratory experiences are performed on equipment and components currently used in the heavy-duty transportation, construction and power generation industries.

Career opportunities for graduates include manufacturer-specific service centers and independent repair and maintenance facilities. Students in the diesel power technology program can find employment within fleet service centers, construction equipment repair, maritime and mining industries, trucking and transportation, aviation ground support, and the seafood processing industry. Employers require technicians to be drug free and physically fit, and to have a current vehicle operator's license with a good driving record. Equal opportunities are available for men and women.

This undergraduate certificate program prepares students to understand the theory and operation of various systems and components associated with the medium- and heavy-duty diesel industry. Students develop the necessary skills for overhauling diesel engines and other major components through a combination of lecture and hands on training. The program also includes courses that focus on medium- and heavy-duty drive trains, braking systems (electric, pneumatic and hydraulic), suspension, steering, electrical/electronic systems, mobile hydraulics, and heating and air conditioning systems that are related to medium- and heavy-duty applications.

## Admission Requirements

- Complete the Admission Requirements for Undergraduate Certificates (<http://catalog.uaa.alaska.edu/academicpoliciesprocesses/admissions/undergraduate/>).
- Complete the following admission requirements:
  - Submit UAA Undergraduate Application for Admission for the Diesel Power Technology Undergraduate Certificate.
  - Document placement at the MATH A055 entry level or higher and at the WRTG A090 entry level or higher. For testing schedule, contact Testing Center at (907) 786-4500.

## Advising

All students must meet with an academic advisor in the Auto/Diesel Technology (ADT) department prior to beginning any program of study and are encouraged to meet each semester for the purpose of reviewing their academic progress and planning future courses. It is particularly important for students to meet with their advisor whenever academic difficulties arise. Degree check sheets are available in the ADT office.

See the ADT advisor for appropriate sequence of courses.

*Note:* If you plan on getting a Commercial Drivers License (CDL), it is advisable to check fitness for a CDL physical.

## Graduation Requirements

- Satisfy the General University Requirements for Undergraduate Certificates (<http://catalog.uaa.alaska.edu/undergraduateprograms/certificaterequirements/>).
- Complete the following program requirements:

## Program Requirements

Code	Title	Credits
ADT A102	Introduction to Automotive Technology	3
ADT A121	Basic Electrical Systems	3
ADT A131	Auto Electrical II	3
ADT A153	Medium/Heavy-Duty Diesel Engines	4
ADT A155	Heavy-Duty Brake Systems	4
ADT A156	Heavy-Duty Maintenance and Inspection	3
ADT A195	Automotive Practicum I	3
ADT A225	Mobile Heating, Ventilation and Air Conditioning Systems	3
ADT A268	Mobile Hydraulic Systems	4
ADT A269	Heavy-Duty Drive Trains	3
WELD A101 or WELD A112	Introduction to Welding Shielded Metal Arc Welding (SMAW)	3-4
<b>Total</b>		<b>36-37</b>

**A minimum of 36 credits is required for the degree.**

## Program Student Learning Outcomes

At the completion of this undergraduate certificate program, students are able to:

- Demonstrate technical knowledge and critical thinking necessary for success in the heavy-duty diesel maintenance and repair industry.
- Demonstrate academic proficiency necessary to pass national examinations within the domain.
- Demonstrate proficiency in performing occupationally related tasks in a professional setting.
- Integrate knowledge from diverse areas to develop effective diagnostic and repair strategies involving complex systems.
- Demonstrate effective employability skills, including oral and written communication skills, as required by the 2014 accreditation standards for the National Automotive Technicians Education Foundation.

## Sample Plan

The academic plan below is one pathway through the degree/certificate. It includes all requirements, taking into account recommendations from program faculty. Each student's plan may vary according

to their initial course placement (<http://catalog.uaa.alaska.edu/academicpoliciesprocesses/academicstandardsregulations/courseplacement/>), intended course load, additional majors and/or minors, and their placement into required prerequisite courses. Any change in the plan below can have an unforeseen impact on the rest of the plan. **Therefore, it is very important to meet with your academic advisor to verify your personal academic plan.**

**Please review the following terms, definitions, and resources associated with the sample academic plan below.**

- Each course in the far left column links to a pop-up bubble with a course description, prerequisite requirements, and associations with university requirements. For example, if a course fulfills a general education requirement, you will see that in the pop-up bubble.
- **GER:** indicates a General Education Requirement (<http://catalog.uaa.alaska.edu/undergraduateprograms/baccalaureaterequirements/gers/>). GERs that also count toward degree/certificate requirements appear as a specific course in the plan. For these courses, "GER" is not indicated explicitly in the table, but if you click on the course, you will see the course's GER status in the pop-up bubble.
- **Program Elective:** indicates a specific course selection determined by program faculty to fulfill a degree/certificate requirement. Students should seek assistance from their academic advisor.
- **Elective:** indicates an open selection of 100-400 level university courses to fulfill elective credits needed to meet the minimum total credits toward the degree/certificate.
- **Upper Division Program Elective:** indicates a specific 300-400 level course selection determined by the program faculty to fulfill a degree/certificate requirement. Students should seek assistance from their academic advisor.
- **Upper Division Elective:** indicates an open selection of 300-400 level courses to fulfill elective credits needed to meet the minimum total credits toward the degree/certificate. These courses must be upper division in order to meet General University Requirements for the particular degree/certificate type.

### First Year

Fall		Credits
ADT A102	Introduction to Automotive Technology	3
ADT A121	Basic Electrical Systems	3
ADT A131	Auto Electrical II	3
ADT A153	Medium/Heavy-Duty Diesel Engines	4
ADT A156	Heavy-Duty Maintenance and Inspection	3
ADT A269	Heavy-Duty Drive Trains	3
<b>Credits</b>		<b>19</b>

### Spring

ADT A155	Heavy-Duty Brake Systems	4
ADT A195	Automotive Practicum I	3
ADT A225	Mobile Heating, Ventilation and Air Conditioning Systems	3
ADT A268	Mobile Hydraulic Systems	4

WELD A101	Introduction to Welding	3
<b>Credits</b>		<b>17</b>
<b>Total Credits</b>		<b>36</b>