

Course Outline

Diesel Power Technology Level 1

School: Center of Applied Technology North
Department: Transportation
Instructor: Mr. Kepich
Course Title: Diesel Power Technology
Course Length: Two Semesters, A Days, Periods 1 & 2
Credits: 2 Diesel Power Technology Credits
Pre-requisites: None

Course Description: The Level 1 Diesel Power Technology program is designed to provide the student's with an introduction into the core areas of the diesel service industry. This program provides training in the inspection, diagnosis, repair and service of diesel engines, brakes, suspension & steering, and electrical/electronic systems. This course has been developed in partnership with Cummins Power Systems and is certified by the National Automotive Technicians Education Foundation (NATEF).

Objective: The objective of the Diesel Power Technology Level 1 program is to introduce the students to the career field of Diesel Power Technology. Diesel Technology is a booming field of opportunity. Every year hundred of thousands of skilled technicians are needed to maintain bus and truck fleets, construction and agricultural equipment, marine diesel engines and power generation equipment. Skilled diesel power technicians are in demand and, the higher the skill level, the higher the wage level.

Required items that must be purchased before the beginning of the school year:

- Leather work boots (steel or safety toed are recommended)
- Safety glasses with side shields (must meet ANSI Z87.1 standard)
- Mechanix type work gloves (can be purchased at www.mechanix.com)
- Navy blue coveralls (can be purchased online at www.automotiveworkwear.com or www.dickies.com) (The school will provide loaners if students does not have coveralls)
- 1" three ring binder with dividers
- Writing utensils (pens, pencils)

Required fees that must be paid for by the student:

SkillsUSA Membership *	\$20
SkillsUSA Professional Development Plan (PDP)	\$13
ASE (Automotive Service Excellence) Student Certification Test *	\$30
Safety glasses with side shields (If not provided by student)	\$4
Total Expenses * Financial assistance may be available-form attached	\$67

Teacher Recommendation Criteria to enroll in Level 2 Diesel Power Technology:

- Demonstration of interest in learning course content.
- Work cooperatively with students and staff.
- Accept responsibility for completing assigned tasks on time.
- Demonstration of the ability to follow directions.
- Use of equipment and materials safely and appropriately.
- Follow school rules and policies correctly.
- Demonstration of aptitude/ability to complete projects accurately.
- Demonstration of retention and ability to apply content knowledge.

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Policies

Attendance Procedures: When a student is absent, parents are required to write two absent notes, one for the home school and one for CATN.

CATN teachers will retain this note for the student's attendance file. The note must include the student's full name, date of each absence, reason for each absence, and the parent's signature. If a student does not bring in a note signed by their parent/guardian within 3 days of their return to school, the code will be listed as illegal. Attendance is very important at CATN. All students who miss time legally are required to complete make-up work for every day missed in a timely fashion. This make-up work may require time after school outside the regular school hours as well as extra time and work at home. Students are to contact the teacher and request all makeup information as soon as they return to class.

Absences due to illness in excess of five consecutive school days must be verified by a physician's note. Students who are excessively absent from school or those who do not complete the necessary make-up work may have their credit withheld, and may be denied the opportunity to go out on work study. Regardless of the cause of the absences, a student who is absent six or more days in a semester is considered excessively absent and the parent will receive a letter from the principal.

Lateness to School: Students who arrive after the regular start time will need to sign in at the main office and complete one punch time card and have a secretary sign the card prior to entering the classroom. Students are required the make-up any work missed when they arrive late.

Safety Precautions: Students are required to wear appropriate clothing as designated by the instructor in order to comply with safety regulations. Safety glasses, substantial leather work shoes with non-skid soles are recommended. Sneakers of any type are not allowed. Students must wear proper safety shoes and glasses as specified by their teacher. Each teacher will discuss this information with the students within the first few days. Some classes do require uniforms. Students are required to follow all safety procedures for their own protection and that of others.

Textbooks/Materials: Textbooks, materials, tools and equipment will be issued by the staff. Students will sign for these and will be held responsible for loss, or damage beyond ordinary wear. Obligations are to be paid as soon as possible. All materials are to be protected and well cared for so that they may be returned to the school upon request or withdrawal from the school. Receipts will be issued for all money collected.

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Grading Scale

- A (90-100%) - Outstanding level of achievement
- B (80-89%) - High level of achievement
- C (70-79%) - Satisfactory level of achievement
- D (60-69%) - Low level of achievement
- E (59% -50) - Failure
- 0 – If student does not attempt the work

Total Weighting:

Diesel: 2 Credits				
Assessment	Description	Task	Frequency of Assessments	Weighting
Work Habits	Work habits are aspects of behavior in a work setting that enable a person to meet the demands of a job in accordance to employment standards.	Work Habits	Work Habits: Bi-Weekly	15%
Formative	Formative assessment is a reflective process that intends to promote student attainment.	Drills, Homework	Drills: Daily Homework: 6 per marking period minimum	25%
Summative	Summative assessment refers to the assessment of the learning and summarizes the development of learners at a particular time.	Test, Lab	Test: 1 Bi- Weekly minimum Lab: 4 per week minimum	50%
	Marking Period Assessment	Test	1 per Quarter	10%
Total				100%

Due Dates / Late Work

All assignments will have a due date. Assignments submitted after the due date will be penalized 10% per day on a sliding scale basis. The outside date for late work to be submitted shall be five school days from the original due date.

Re-Teach & Re-Assess

Students shall have one additional opportunity to improve their score on a qualifying assessment, activity, or assignment which demonstrates knowledge of course content, skills, and standards. To qualify, students must have completed and submitted the original assessment, activity, or assignment by the due date and must have participated in the teacher-facilitated reteaching (before, during, or after school) within five school days following the return of the original graded work. Within ten school days of receiving the returned original graded work, students must complete and submit the new assessment, activity, or assignment. The higher grade shall be the grade of record.

Work eligible for re-assessment: Work Habits, Drills, Homework, Lab

Work not eligible for re-assessment: Test

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Minimum Grades

A minimum grade of 50% will be assigned to assignments or assessments for which the student made a good faith effort, as determined by the teacher, to meet the basic requirements. If a student does no work on an assignment or assessment, the teacher will assign a grade of zero.

Group Work Grades

On occasion, students will be asked to work in small groups on a variety of assignments. In those cases, each student will be individually assessed and assigned a grade that reflects their own level of success in meeting the outcomes for that particular assignment.

Academic Integrity

A student who exhibits academic dishonesty, as determined by the teacher and administrator will receive a zero on the particular assessment/assignment in question. Violations of the Academic Integrity Policy and Regulation may result in disciplinary action. Consequences for violations may vary according to the severity of the violation and shall follow the progressive interventions and discipline as outlined in the Student Code of Conduct.

Assessment Information

There will be a minimum of nine separate assignments or assessments, an average of one grade per week, for course content, skills, and mastery in addition to homework.

Parent Notification Information

1. Types of Parent Notification

- a. Phone calls (I can be reached at 410-969-3100)
- b. E-mail (my email address is jkepich@aacps.org)
- c. Parent/Teacher conferences
- d. Grades can be accessed online through ParentConnect
- e. Interim reports

2. To allow for timely, potentially corrective action, prompt communication with a parent/guardian will occur if:

- a. A student is in danger of failing or
- b. A student is in danger of dropping the equivalent of 2 or more letter grades at any point during the marking period.

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Semester 1 Course Content

Mechanical Fleet Safety: This course will include instruction in all types of safety including general shop, fire, personal and hazardous materials safety. The students will develop safe work habits in the shop from their understanding of various safety precautions, rules and procedures. The law requires each employee and student be trained before he or she begins working and annually.

- A. Introduction
- B. Safety Data Sheets and the Hazard Communication Standard
- C. Personal Protective Equipment
- D. First Aid Kits
- E. Eye Wash
- F. Fires
- G. Power Tools
- H. Electrical
- I. Jump Starting
- J. Hybrid Vehicles
- K. CNG
- L. Lockout / Tagout
- M. Walking and Work Surfaces
- N. Avoiding Injury in the Workplace
- O. Bloodborne Pathogens
- P. Respirators/Air Quality
- Q. Operating Vehicles
- R. Lifts
- S. Welding

I. Diesel Engines: Diesel: Diesel Engines is a course offering training in the testing and repairing of diesel engines and related systems. The course introduces fundamental principles of diesel engine operation. Students will learn to perform inspections, tests, and measurements for diagnosis and to perform needed repairs. Course content prepares students to continue in post secondary education, for advanced training in diesel service technology, for entry level employment in diesel engine repair and to take the ASE written test for Diesel Engine.

- A. General**
- B. Cylinder Head and Valve Train**
- C. Engine Block**
- D. Lubrication Systems**
- E. Cooling System**
- F. Air Induction and Exhaust Systems**
- G. Fuel System**
 - 1. Fuel Supply System
 - 2. Electronic Fuel Management System
- H. Engine Brakes**

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Homework: SkillsUSA Professional Development Program (PDP) Level 1 Student Workbook:

Self-motivation, cultural diversity and time management are just some of the 12 employability skills your students will learn in Level 1.

Benefits

- Delivers skills employers want.
- Builds a portfolio.
- Teaches job search skills.
- Teaches workplace values.
- Puts students in touch with business and industry.
- Enables students to direct their own learning process.

Level 1 Self-Improvement

- Level 1.1 Complete a self-assessment and identify individual learning styles
- Level 1.2 Discover self-motivation techniques and establish short-term goals
- Level 1.3 Determine individual time-management skills
- Level 1.4 Define future occupations
- Level 1.5 Develop awareness of cultural diversity and equity issues
- Level 1.6 Define the customer
- Level 1.7 Recognize benefits of doing a community service project
- Level 1.8 Demonstrate effective communication with others
- Level 1.9 Participate in a shadowing activity
- Level 1.10 Identify the components of an employment portfolio
- Level 1.11 Explore what's ethical in the workplace or school
- Level 1.12 List proficiency in program competencies

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Semester 2 Course Content

Mechanical Pollution Prevention: If you handle coolant, oil and brake fluid, or other chemicals in the workplace, OSHA and the EPA require you to complete safety and environmental training before even entering the shop, and then at least annually after.

- A. Introduction
- B. Solvents
- C. Wastewater
- D. Floor Drains
- E. Oil and Similar Fluids
- F. Absorbents and Spills
- G. Antifreeze
- H. Batteries
- I. Refrigerant
- J. Tires
- K. Other Sources
- L. Asbestos

III. Brakes: Diesel: Brake Systems is a course offering training in the diagnosis and repair of systems used in medium/heavy trucks to include standard and anti-lock brake systems. Students will learn to diagnose, repair and/or service truck hydraulic, air, and antilock brake systems to original equipment manufacture's (OEM) specifications. Course content prepares students for entry-level employment in diesel brake systems, continuing education in diesel technology and post secondary education. Students completing the Diesel: Brake Systems course will be eligible to take the ASE written examination for Brakes in Medium/Heavy Trucks.

A. Air Brakes

- 1. Air Supply and Service Systems
- 2. Mechanical/Foundation
- 3. Parking Brakes

B. Hydraulic Brakes

- 1. Hydraulic System
- 2. Mechanical/Foundation
- 3. Power Assist Units

C. Air and Hydraulic Antilock Brake Systems (ABS) and Automatic Traction Control (ATC)

D. Wheel Bearings

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Homework: SkillsUSA Professional Development Program (PDP) Level 2 Student Workbook:

Take the next step! Build on Level 1 with 19 competencies including customer service skills, team skills and completing a job application.

Benefits

- Delivers skills employers want.
- Builds a portfolio.
- Teaches job search skills.
- Teaches workplace values.
- Puts students in touch with business and industry.
- Enables students to direct their own learning process.

Level 2 Civic, Social and Business Awareness

Level 2.1 Measure/modify short-term goals

Level 2.2 Identify stress sources

Level 2.3 Select characteristics of a positive image

Level 2.4 Demonstrate awareness of government

Level 2.5 Demonstrate awareness of professional organizations and trade unions

Level 2.6 Apply team skills to a group project

Level 2.7 Observe and critique a meeting

Level 2.8 Demonstrate business meeting skills

Level 2.9 Explore workplace ethics: codes of conduct

Level 2.10 Demonstrate social etiquette

Level 2.11 Complete a survey for employment opportunities

Level 2.12 Review a professional journal and develop a three- to five-minute presentation

Level 2.13 Identify customer expectations

Level 2.14 Complete a job application

Level 2.15 Identify a mentor

Level 2.16 Assemble your employment portfolio

Level 2.17 Explore supervisory and management roles in an organization

Level 2.18 Recognize safety issues

Level 2.19 Employability skills: evaluate program comprehension

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I have read and agree with the course outline for the Level 1 Diesel Power Technology Program at Center of Applied Technology North.

Parent signature: _____ Date: _____

Please print legibly: Contact Info (Email or Phone): _____

Alternate: _____

Student signature: _____ Date: _____

Student printed name: _____