STUDENT HANDBOOK

Walla Walla Community College

Diesel Technology

Walla Walla Community College does not discriminate on the basis of race, color, national origin, sex, disability or age in programs and activities.

Updated July 2011

Walla Walla Community College

Diesel Technology

Diesel Technology
500 Tausick Way
Walla Walla, WA 99362
1-509-522-2500
www.wwcc.edu

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Walla Walla Community College
Diesel Technology

PROGRAM OBJECTIVES:
To train individuals to have the technical knowledge, mechanical skills, and proper attitudes required to service, repair, and test various types of machinery, depending on the students' particular employment goals.

PROGRAM DESCRIPTION:
Both theory and hands on applications are included in the curriculum. In addition to the mechanical phases of instruction, the program provides background and related courses designed to help the student learn their craft, get a job, and progress in their field.

Major aspects of mechanical work studied include engine rebuilding, air and hydraulic brakes, standard, automatic, and power shift transmissions, clutches, drive lines, differentials, axles, fuel and electrical systems, fuel injection, computerized engine controls, tune-up work, charging and starting systems, suspension systems, steering, and hydraulics.

Required general education courses are mathematics, vocational writing, job psychology, job seeking skills, job communications, and student leadership. Basic welding is a required course.

The Diesel Technology Program is conducted as close as possible to a trade situation which includes the student's ability to deal with customers, the knowledge of the overhead costs needed to operate a repair shop and the time needed to purchase tools from the tool truck.

PROGRAM GOALS:
The goal of the Diesel Technology program is to prepare individuals for careers as Diesel and Heavy Equipment mechanics and occupations related to the field. Upon satisfactory completion, the student will meet the entry-level performance requirements including:

1. Understand the construction, function, and general service of all major equipment components.
2. Diagnose mechanical malfunctions and performance problems.
3. Make decisions as to disposition of worn parts (i.e., "usable as is", "should be reconditioned or replaced", etc.).
4. Operate precision diagnostic and repair equipment.
5. Read and interpret repair manuals.
6. Understand the importance of good public relations with customers, employer, and fellow employees.
7. Understand basic shop operation.
8. Be cognizant of overhead and labor cost in relationship to profit.
9. Understand apprenticeship and how it functions.
10. Be informed on methods of seeking employment.

TUITION:
For current tuition and other registration fees refer to the current college catalog or visit the college web site at **www.wwcc.edu**

PROGRAM REQUIREMENTS:

Length of program:
The Diesel Technology Program consists of six continuous quarters, running Fall, Winter, and Spring for two years. Spring quarter of the second year may be replaced by completing cooperative work experience during the summer between first and second year, with instructor permission.

Class hours:
Class hours vary by academic quarter. Check the current schedule or ask the instructor.

Attendance:
See attendance policy on page 14 of student handbook.

DAILY LOG BOOK SYSTEM:

Students will be responsible for recording their own time on shop projects. If you forget to fill out your work log, you will not receive credit for that time period. If you do not satisfactorily record what you have done during that time, you will not receive credit for that period. Daily time logs will be collected each Friday. Time logs will record work detail to justify time on task.

TIME CLOCK SYSTEM:

Students are responsible for recording shop hours using the time clock system. Students will check in when ready to work and check out when work is over. Students will check out for lunch times.

GRADING:

Student grades will be computed at the completion of each quarter. The six areas listed below are evaluated for developing your grade for each class. Advanced mechanics and student leadership will be evaluated on performance objectives and the students daily work log. Regular attendance, overall class behavior, attitude, attentiveness, class participation and discussion are an integral part of acceptable achievement and performance.
The instructor reserves the right to modify the course requirements, assignments, grading procedures, and other related policies as deemed necessary and appropriate by the instructor.

DIESEL CLASS ROOM THEORY:

Unit test scores
Class room participation
Notebook

QUALITY OF WORK LAB AND THEORY:

Accuracy
Efficiency
Comprehension
Job completeness
Mechanical ability
Customer acceptability

WORK HABITS LAB:

Planning
Organization
Routine
Promptness
Speed
Accuracy/Neatness of Log sheet
Interest
Ambition
Initiative
Housekeeping
Neatness

CARE OF TOOLS LAB:

Completeness of basic tool set
Orderliness of toolbox
Willingness to maintain tools
Use of protective equipment
Observance of safety rules

ATTITUDE

Student's priority level of Eagerness/ Desire/ Interest to learn and achieve.
Appearance
Language
Willingness to work with others.
Personality
Behavior

ATTENDANCE:

See attendance policy

TESTING:
Unit tests will be given on reading assignments and lectures. All students must be present on the day the test is given**.** ***No makeup tests will be allowed; a student missing the test will receive no credit. As a result the overall grade will be affected***. Students will be advised of areas where improvements are needed throughout the quarter. All written work will be graded on a percentage of correct answers as follows:

	OUTSTANDING ACHIEVEMENT:	
A	100-93	4.0
A-	92-90	3.7
	HIGH ACHIEVEMENT:	
B+	89-88	3.3
B	87-84	3.0
B-	83-80	2.7
	AVERAGE ACHIEVEMENT:	
C+	79-77	2.3
C	76-73	2.0
	BELOW 2.0 GPA	
C-	72-70	1.7
D+	69-67	1.3
D	66-60	1.0
F	<60	0.0

A the instructor's discretion, a "Z" grade may be issued if the student has not met minimal course objectives due to extenuating circumstances (accident, illness, death in the family, etc.)

NATEF COMPETENCY EVALUATION:
Each unit is designed with the intent that the student will master specific tasks which will be required to perform on the job. These are designated as unit performance objective(s). Each performance objective is broken down into the steps that enable the student to perform the task. The student will self-grade each competency scale located in the NATEF competency book based on the appropriate criteria, using the following scale:

"0" – No Exposure; no information or practice "1" – Exposure Only; general information "2" – Limited Practice; has practiced job

"3" – Moderately Skilled; has performed job "4" – Skilled; can perform job

At the end of the unit, rating scores will be averaged together to for one score for the unit between 0 and 4. Each unit score is worth a percentage of the final grade.

COMPENTENCY BOOK/PORTFOLIO
You will be required to maintain a competency-tracking book throughout the two-year program. The book will be a record of competency mastery as practiced in the lab. All vehicles that you work on will require a record of tasks completed and annotated in your competency book and a work order prepared for documentation of training received. The student will be allowed to insert anything to document training and material used as an employer portfolio tool in your book. This includes things such as resumes, pictures of the student working in the lab, research papers, reports, and other documents that would be of interest by an employer when making a decision to employ one of our graduates. When you graduate, a copy of the book will be kept by the WWCC Diesel Technology department. You will be given your original copy to take with you as an employment tool so it is in your best interest to maintain a neat professional appearing book.

METHODS OF INSTRUCTION:

The Diesel Technology Program utilizes two basic types of instruction:

Lecture/Lab: Lectures, demonstrations, films, and other training aids are used in the classroom phases of instruction. Labs are designed to provide experience in areas that are required competencies for the course.

Live Shop Work: Shop work is performed on customer vehicles that are brought into the shop for repairs. The student will use accumulated skills to complete these projects.

TEXT BOOKS AND NOTES/HANDOUTS:

The following is a list of textbooks pertaining to the class in which the student is currently enrolled. ***These text books are required*** *and the instructor will check to make sure all students have them. Students are required to purchase their own textbooks. Students will also need to purchase the "Notes/Handout" packet from the Bookstore for appropriate classes.*

Medium/Heavy Duty Truck Engines, Fuel & Computerized Management Systems, 3rd ed.
Sean Bennett
Copyright 2009, ISBN-10: 1-4283-6666-0
Delmar, Cengage Learning

Heavy Duty Truck Systems, 5th ed.
Sean Bennett / Ian Andrew Norman
Copyright 2011, ISBN-10: 1-435-48382-0
Delmar, Cengage Learning

STUDENT HAND TOOLS

The student must furnish his/her own basic hand tools. A locking toolbox and an adequate set of tools will cost approximately **$2500 to $3500**. See appendix or our website for the first year and second year required tool list. Our goal is to help you have a complete basic tool kit upon your graduation. Students are required to have all first–year required tools at completion of the third quarter of enrollment. Students who have not acquired these tools will potentially be dropped from the program, unless instructor permission has been granted to do otherwise. We feel having a complete set of tools upon graduation will assist you in being prepared as an entry-level technician when you seek employment. To assist you in the purchase of your tools, tool vendors offer our students up to 50% discounts while you are enrolled in the program as well as available tool scholarships**.**

FACILITIES AND EQUIPMENT:

Testing equipment, specialized tools and power tools are provided by the school. Students must furnish his or her basic hand tools.

REQUIREMENTS FOR ADMISSION:

Students enrolling in the Diesel Technology program must have a High School diploma or the equivalent **to receive an AAAS degree.**

Each applicant, before enrollment, is required to take a placement and mechanical aptitude test and have a personal interview with the instructor to determine motivation and general fitness for the program.

CLASSAND SHOP POLICIES:

1. During Fall and Winter quarter classes will start at 8:30 a.m. and conclude at 3:30 p.m., Monday through Friday. Spring quarter classes will start at 7:30 a.m. and conclude at 2:30 p.m., Monday through Friday. **Students that are late or unable to attend class MUST call or notify the instructor.** This is very important due to scheduling of customer owned repair projects. We are counting on you being in class every day!

2. Lunch and break times during the instructional day will be determined by the instructor. Students may leave the shop and class area during the lunch period. **NO FOOD OR BEVERAGE ALLOWED IN SHOP OR COMPUTER LABS.**

3. All personal appointments, (doctor, dentist, etc,) must be made outside of class hours, except for an emergency.

4. Anyone with personal business, such as telephone calls or business, will not use the school phone or school time to resolve it. If needed, the instructor will dismiss you so that you can take care of the problem.

5. There will be **NO SMOKING OR CHEWING OF TOBACCO PRODUCTS** in the classroom or shop areas. There is a designated area where students may smoke tobacco products before or after class and during break and lunch periods. Note: Smoking area **WILL** be left clean and picked up at all times.

6. No smoking in state or customer owned vehicles while road testing. No playing of customers' radios while working on vehicle or road testing. (unless playing radio is part of the job)

7. Use of profanity, lewd language or conduct unprofessional in nature will result in dismissal from the class.

8. During lecture, avoid being rude and disruptive to the learning process by engaging in side conversations, arriving late for class, or rattling papers, excessive leaving of classroom for bathroom breaks,etc.

9. Instructor reserves the right to excuse any student from class that is disruptive to the educational process.

10. Do not bring children or pets to class.

11. Students will wear leather boots and coveralls in the shop area at all times. No open-toed, canvas, or unsafe shoes will be allowed. Note: Wearing coveralls with sleeves rolled up or tied around the waist will not be permitted at anytime. Students will be required to pay a coverall rental fee at the beginning of each quarter. Clean laundered coveralls will be delivered each week. Coveralls must have sleeves with hemmed edges.
Coveralls will not be taken off campus (except during morning break and lunch break).

12. Students will keep their coveralls, jackets, and other personal property in their lockers when not in use. Students will not take coveralls home for personal use.

13. Students must furnish all their own hand tools. Students are required to have the complete tool list upon graduation. Each student will make steady progress (ie.one third of tools each quarter) towards acquiring the basic hand tools set required of the DT program. Students will have all first year tools by end of their third quarter. Students will have all second years' tools near end of their sixth quarter and before graduation. Students who fail to have all necessary tools in a timely fashion will be dropped from the DT program. Instructors will inspect tool boxes throughout all quarters.

14. Students are required to provide a lock for their lockers. Books will be put away at the end of each class day. Before leaving the lab area, all tools, air hoses, equipment and other items will be put away and work benches must be cleaned. Oil and water drain pans must be emptied and cleaned. Areas around and under the vehicle being worked on must be swept and cleaned daily.

15. Students with long hair that can fall over their eyes, or get caught in machinery, MUST keep their hair covered or tied up. Note: Warnings will be given resulting in student not being allowed in shop until hair is secured.

16**. STUDENTS MUST WEAR SAFTEY GLASSES AT ALL TIMES IN THE SHOP AREA.** Note: No dark or shaded lenses allowed in shop area. Prescription glasses will be of safety type and structure.

17. One student will be assigned to the tool room each day. All major tools and equipment and any items checked out of the tool room will be checked back in daily, cleaned and ready for the next user. The only person allowed in the tool room will be the student in charge or an instructor. Tool attendant will insure all tools are put away properly and neatly!

18. All work projects and purchasing will be done through the instructor.

19. First quarter enrolled students will not be allowed to bring their own vehicles in as a class project for the first ten (10) weeks. NOTE: An exception to this rule would be a small emergency repair, then with instructor permission only.

20. No student at any time will be allowed to bring his or her vehicle or any other vehicle or project into the class area without first obtaining permission from an instructor. All vehicles accepted for repair will be charged parts, haz mat and supplies and materials fee. No exceptions.

21. No student will operate, or try to use any shop equipment unless he/she has been instructed in its use by the instructor.

22. Class projects are to be worked on in the shop area only.

23. Each student is required to read and sign a list of computer lab rules prior to using the computer lab. Violation of any one of these rules can result in the student losing computer lab use privileges.

24. **Student must have a current driver's license and proof of insurance to drive or move any vehicle associated with our program.** Students must show driver's license and proof of insurance to an instructor and sign the driver's license form. (See driver's license agreement policy)

25. Each student is responsible for his/her own education. Instructors will guide students in the direction of their chosen field.

26. **No cell phones allowed in class or the shop**. Cell phones will be kept in the student's locker or tool box when in the WWCC Diesel Technology Training Center building. If you need to be notified in an emergency, have them call 509-529-2600, (not your cell phone).

27. No personal radios allowed in shop or classroom.

28. Any student who does not follow class/shop lab policies may be dropped from class for his/her safety and the safety of fellow students.

SHOP POLICY REGARDING VEHICLES ACCEPTED FOR STUDENT WORK EXPERIENCES IN THE DIESEL TECHNOLOGY PROGRAM:

1. The Instructor reserves the right to select repair jobs based upon their training value and sequence.

2. If the customer requests an estimate, the instructor will write a repair cost estimate at the time the project is delivered to the college. The owner will be informed if it appears that costs will exceed the original estimate and will be asked to approve additional charges before the work is done.

3. The customer will assume all responsibility by signing a release at the time the project is delivered to the college.

4. Owners will be required to pay repair charges in full before the college releases the vehicle. Commercial account credit arrangements may be made between the college and the account representative located in the WWCC business office.

5. Charges for repairs are based on the cost of parts, materials, shop costs, hazardous material disposal and will be established with the assistance of the Advisory Committee. Work performed is for instructional purposes only.

6. The college reserves the right to require partial or full payment, in advance, if the cost of the repair job is estimated to exceed the value of the unit or the cost of the repair will exceed $200.00

SERVICES FOR STUDENTS WITH DISABILITIES

Our Commitment
WWCC has support services for students with disabilities to ensure that our programs and facilities are accessible. Our campus provides reasonable accommodations to qualified students with disabilities. These services are provided through the Student Development Center.

To make an appointment or learn about our services contact:
Claudia Angus
Coordinator of Disability Support Services
Office 133H
Contact: (509) 527-4543

For appointments please phone: (509) 527-4262
TDD: (509) 527-4412
E-mail: claudia.angus@wwcc.edu

What are your Responsibilities?

- You are responsible for your own success in higher education.
- You are expected to meet the academic standards required of all students.
- Identify yourself as a student with a qualified disability to the Coordinator of Disability Support Services.
- Provide documentation regarding your disability.
- Ask for reasonable accommodation at the College.
- Request services early. We recommend at least six weeks prior to entering the college.

What are your Rights?
You have the right to services and reasonable accommodations based on your documentation.

What Services May be Provided?
Services and reasonable accommodations are available on an individually determined basis based on your documentation and individual needs.

Examples of services are:

- Accessible facilities
- Alternate educational materials, such as braille, enlarged print, books in audio format
- Testing and classroom accommodations
- Sign language interpreters
- Mobility training
- Priority registration
- Adaptive furniture
- Specialized equipment and software

Confidentiality
Information regarding a student's disability is considered confidential. Information will not be released without the expressed written permission of the student.

Dispute Resolution
Students are encouraged to resolve concerns by first contacting the Coordinator of Disability Support Services. It is in everyone's best interest that disputes over reasonable accommodations for students with disabilities be settled as quickly and informally as possible. Walla Walla Community College also offers a formal procedure for students who have a complaint or grievance with the institution. See Grievance Procedure (.doc).

Student Injury and Sickness Insurance

Brochures for the *Student Injury and Sickness Insurance Plan* are available at the Business Office counter.

Reduced rates are available for student accident and medical insurance policies. Claim forms are available from the Office of the Vice President of Student Services. Contact 509.527.4208 (Walla Walla) or 509.758.1718 (Clarkston Campus) for more information. Student Injury and Sickness Insurance Plan is designed especially for the students of Washington State Community Colleges (2011-2012). The current policy, #US003910, is underwritten by United States Fire Insurance Company (by Fairmont Specialty), a Division of Crum & Forster Administrative Office, Eatontown, NJ 07724.

Insurance is available to students of Walla Walla Community College. The following plans are available per Academic Quarter.

	All Quarters 9/1/10-9/1/11	Fall Quarter 9/19/11 to 12/8/11*	Winter Quarter 1/3/12 to 3/16/12*	Spring Quarter 3/26/12 to 6/7/12*	Summer Quarter 6/18/12 to 8/3/12 *
OPTION I -- INJURY ONLY PLAN					
Student Only	$147.00	$ 39.00	$39.00	$39.00	$39.00
Student & Spouse	$574.00	$145.00	$145.00	$145.00	$145.00
Student & Children	$326.00	$84.00	$84.00	$84.00	$84.00
Student & Spouse & Children	$752.00	$190.00	$190.00	$190.00	$190.00
OPTION II – INJURY & SICKNESS PLAN					
Student Only	$703.00	$180.00	$180.00	$180.00	$180.00
Student & Spouse	$3,050.00	766.00	$766.00	$766.00	$766.00
Student & Children	$1,602.00	403.00	$403.00	$403.00	$403.00
Student & Spouse & Children	$3949.00	$991.00	$991.00	$991.00	$991.00

**Actual dates based on the specific starting and ending dates of each quarter for the respective College. Prices subject to change.*

PLEASE APPLY FOR INSURANCE AT THE WWCC BUSINESS OFFICE

CHECK ONE

_____ I have purchased school insurance.

_____ I have coverage under my own policy or my parents' policy.

_____ I have no insurance coverage and understand that I am solely responsible for medical costs associated with injuries that I may cause or may be sustained by me.

_____ _____ _____

Student Signature Quarter (Fall, Winter, Spring) Date

Shop Safety

SAFETY STATEMENT

For every task in the Diesel Technology environment a set of safety procedures is taught and strictly enforced. Students receive instruction encompassing personal and environmental safety practices associated with all aspects of the diesel work environment, i.e. clothing, eye protection, hand protection, power equipment, hand tools, ventilation, handling-storage-disposal of hazardous materials as required in Hazard Communication Title 29, Code of Federal Regulation Part 1910.1200, 'Right to Know Law', and as prescribed in state and local regulations.

It is understood that in all areas of instruction appropriate safety, theory, and support procedures will be required for the performance of each task.
Instruction includes the identification and use of appropriate tools, as well as testing and measurement equipment required. All tools and equipment provided for instruction comply with applicable federal, state and local regulations.

Students have ready-access to the latest, current reference and training materials from accepted industry publications, as well as current
Manufacturers' recommended repair procedures. All diagnostic and repair services outlined in this document are completed in accordance with manufacturer's recommended procedures/specifications as published. Where manufacturers' recommended guidelines are not available, published industry guidelines are used.

RULES

1. APPROPRIATE clothing should always be worn:
    A. Coveralls clean and mended.
    B. Leather work boots - no tennis shoes.
    C. Wear safety glasses at all times while in the shop area.

2. Long hair that could fall over eyes, or get caught in something, must be kept covered or tied back.

3. It is recommended that individuals not wear rings or wrist watches in the lab/shop environment. These items pose a hazard and may catch resulting in injury.

4. Approved eye protection (goggles, face shields, or safety glasses) must always be worn in the lab/shop environment to avoid hazard when grinding, hammering, using chisels and punches, charging air conditioning systems, drilling, using a blow gun, and many other tasks in which dirt or foreign material may cause injury to the student's face or eyes.

5. The student must follow proper procedures when charging and maintaining batteries. Always disconnect batteries when working on a vehicle.

6. The student should use caution when removing a radiator cap from hot pressurized cooling systems. Always follow designated procedures.

7. Know where the eye flushing stations are and the proper method to flush out the eyes.

8. When jacking up a vehicle, make sure the jack is placed on a proper lift point. Always use jack stands under equipment or vehicles when raised.

9. No horseplay will be tolerated in the shop or classroom at any time.

10. Keep air hoses and electrical cords picked up when not in use to prevent someone from tripping on them.

11. When using electrical tools, make sure the grounding lug on the cord is in place before using tool.

12. Know where fire extinguishers are stored and their proper use.

13. Place all used rags in the airtight storage can by the classroom.

14. **REPORT ANY AND ALL INJURIES TO THE INSTRUCTOR.**

15. Know where the first aid kits are located. Inform the instructor if you use any of the supplies.

16. Be aware and knowledgeable of the proper methods of hazardous material handling, storage and disposal.

17. Know building emergency evacuation routes and procedures.

18. Report immediately to the designated meeting area after evacuating the building. Designated evacuation area is in front of the Pro-Tech building at the end of the parking lot.

19. Do not attempt to operate any piece of shop equipment without **obtaining complete instructions from your instructor.**

20. Assure that all safety guards are in place and secure prior to using shop equipment.

21. Smoking is allowed only in designated areas.

22. **Clean up all grease, oil, antifreeze, or any other liquid spills immediately.** Watch your step in the shop.

23. Do not run at any time in the shop.

24. Don't tamper with someone else's machine, project, or parts

25. Never run equipment in the shop without using the shop exhaust system.

26. Stand aside from the grinders when starting.

27. Always use proper cleaning fluids when cleaning parts. Do not use flammable fluids to clean parts (example gasoline).

28. Keep work area clean and neat.

29. Get help for heavy loads. Use proper lifting techniques.

30. **Always have someone in the driver's seat when starting a piece of equipment.**

Statement: I have read and understand the above rules and will comply with them.

Signature: _____ Date: ____/_____/_____

Attendance Policy

Full quarter duration classes:

- Three (3) times tardy will equal one absence.
- Three (3) absences will lower final grade by ½ letter grade.
- Five (5) absences will lower final grade one letter grade.
- On the sixth absence in one quarter the student will be failed and the student may be dropped from the program at the instructor's discretion. The instructor has the option to forgive absences due to illness if a doctor's letter explaining the illness is provided.

One half quarter duration classes:

- Two (2) absences will lower final grade by ½ letter grade.
- Three (3) absences will lower final grade by one letter grade.
- Four (4) absences will result in failure of the class.
- Two (2) times tardy will equal on absence.

A tardy is defined as arriving after class/lab has started and/or not being prepared for theory class or lab.

Being prepared for theory class is defined as being seated with proper books and supplies and ready for study. Being prepared for lab is defined as having boots and coveralls on with toolbox unlocked, opened and ready for work.

An absence is defined as missing fifteen minutes or more of theory class or lab.

I have read and understand the above information:

SIGNATURE: _____ DATE: __/____/___

Computer Use Policy

- Students will not use the instructor's computer.
- During class time, computers will not be used for personal business, entertainment, or e-mail activity.
- No games will be played on the computers.
- All students have a WWCC e-mail account. Students have access to their e-mail accounts on WWCC computers. Students cannot access their accounts during class or shop times.
- During shop or class times computers are for work only. No personal use during these times.
- No lewd or obscene materials may be viewed on the Diesel Technology program computers. This includes e-mail accounts.
- Students will not change settings or destroy files in the computer.
- Students will not enter adult sites, chat sites, or dating/mate finding sites.
- Students will not enter secured areas on the WWCC network.
- Students will complete their computer usage in a timely manner.

I have read and understand the above rules and will comply with them.

Signature: _____ Date: ___/___/___

Student Data Sheet

Complete the following data sheet and turn in to the instructor. **Please print.**

Name: _____

Birth Date: _____/_____/_____ Age: _____

Drivers license number: _____

State: _____ Type: _____

Phone number: _____

E-mail address: _____

Emergency contact:

Name: _____

Phone number: _____

Relationship: _____

Do you have current auto liability insurance? Yes _____ No _____

Is your driver's license current? Yes _____ No _____

Drivers license expiration date: _____/_____/_____

Home address: _____
_____
_____

Current address: _____
_____
_____

Note: Students must have current drivers license and liability insurance to operate college or customer vehicles.

I certify that the above statements are correct and true:

Signature: _____ **Date:** _____/_____/_____

Diesel Equipment Mechanics Competency List

Diesel Engines

- ☐ General Engine Diagnosis
- ☐ Cylinder Head and Valve Train Diagnosis and Repair
- ☐ Engine Block Diagnosis and Repair
- ☐ Lubrication Systems Diagnosis and Repair
- ☐ Cooling System Diagnosis and Repair
- ☐ Air Induction and Exhaust Systems Diagnosis and Repair
- ☐ Fuel System Diagnosis and Repair
- ☐ Engine Brakes

Drive Train

- ☐ Clutch Diagnosis and Repair
- ☐ Transmission Diagnosis and Repair
- ☐ Driveshaft and Universal Joint Diagnosis and Repair
- ☐ Drive Axle Diagnosis and Repair

Brakes

- ☐ Air Brakes Diagnosis and Repair
- ☐ Hydraulic Brakes Diagnosis and Repair

Suspension and Steering

- ☐ Steering Systems Diagnosis and Repair
- ☐ Suspension Systems Diagnosis and Repair
- ☐ Wheel Alignment Diagnosis, Adjustment, and Repair
- ☐ Wheels and Tire Diagnosis and Repair
- ☐ Frame Service and Repair

Electrical / Electronic Systems

- ☐ General Electrical Systems Diagnosis
- ☐ Battery Diagnosis and Repair
- ☐ Starting System Diagnosis and Repair
- ☐ Charging System Diagnosis and Repair
- ☐ Lighting Systems Diagnosis and Repair
- ☐ Gauges and Warning Devices Diagnosis and Repair
- ☐ Related Electrical Systems

Heating, Ventilation & Air Conditioning

- ☐ HVAC Systems Diagnosis, Service and Repair
- ☐ A/C System and Component Diagnosis, Service and Repair
- ☐ Heating and Engine Cooling Systems Diagnosis, Service and Repair
- ☐ Operating Systems and Related Controls Diagnosis and Repair
- ☐ Refrigerant Recovery, Recycling, and Handling

Preventive Maintenance Inspection

- ☐ Engine System
- ☐ Cab and Hood
- ☐ Electrical / Electronics
- ☐ Frame and Chassis

Hydraulics

- ☐ General System Operation
- ☐ Pumps
- ☐ Filtration / Reservoirs (Tanks)
- ☐ Hoses, Fittings, and Connections
- ☐ Control Valves
- ☐ Actuators

"0" = No Exposure; no information or practice

"1" = Exposure Only; general information

"2" = Limited Practice;

"3" = Moderately Skilled; Has practiced job during

"4" = Skilled; can perform job has performed

Diesel Technology

For every task in the Diesel Technology environment a set of safety procedures is taught and strictly enforced. Students receive instruction encompassing personal and environmental safety practices associated with all aspects of the diesel work environment, i.e. clothing, eye protection, hand protection, power equipment, hand tools, ventilation, handling-storage-disposal of hazardous materials as required in Hazard Communication Title 29, Code of Federal Regulation Part 1910.1200, 'Right to Know Law', and as prescribed in state and local regulations.

It is understood that in all areas of instruction appropriate safety, theory, and support procedures will be required for the performance of each task.
Instruction includes the identification and use of appropriate tools, as well as testing and measurement equipment required. All tools and equipment provided for instruction comply with applicable federal, state and local regulations.

Students have ready-access to the latest, current reference and training materials from accepted industry publications, as well as current manufacturer's recommended repair procedures. All diagnostic and repair services outlined in this document are completed in accordance with manufacturer's recommended procedures/specifications as published. Where manufacturer's recommended guidelines are not available, published industry guidelines are used.

Faculty Advisor:

Dave Bailey *509.529.2600* *david.bailey@wwcc.edu*

http://www.wwcc.edu/dieselequipment

Department Overview
Diesel Technology provides a hands-on, work-based training experience and the classroom curriculum required for careers in diagnosing and repairing heavy-duty trucks, heavy equipment, medium-duty vehicles, agricultural equipment, logging equipment, forklifts, and mining equipment. Diesel Technology integrates the many components necessary to prepare students with the technical knowledge and mechanical skills required to service, repair, and test various types of machinery. An extensive curriculum prepares students to apply knowledge and skills to a wide range of diesel powered equipment applications. The Diesel Technology curriculum is reviewed by an advisory board composed of local and regional industry members.

Degrees
Students may earn an Associate in Applied Arts and Sciences Degree in Diesel Technology, upon completion of a two-year program of study. A Diesel Technology Certificate is available upon completion of the first year of study in the program.

Industry Description
Diesel service technicians and mechanics, also known as bus and truck mechanics and diesel engine specialists, repair and maintain the diesel engines that power transportation equipment such as heavy trucks, buses, bulldozers, cranes, road graders, farm tractors, and combines. Diesel maintenance is becoming increasingly complex, as more electronic components are used to control the operation of an engine. Technicians who work for organizations that maintain their own vehicles spend most of their time doing preventive maintenance to ensure that equipment will operate safely.

Career Opportunities
- Heavy-Duty Truck Repair
- Heavy Equipment Repair
- Medium-Duty Vehicle Repair
- Agricultural Equipment Repair
- Logging Equipment Repair
- Forklift Repair
- Mining Equipment Repair

Entrance Requirements
It is recommended that the student contact the lead instructor regarding appropriate program placement and paying a priority list fee to determine specific quarter start in the program. Students may enter the program fall, winter or spring quarter, however, due to course sequencing it is recommended to begin in the fall. A placement test and mechanical reasoning test offered by the Student Development Center must be completed prior to admittance to the program.

Other Information
Students under the age of 18 and/or without a high school diploma or GED require instructor permission to enroll in Diesel Technology courses. A high school diploma or GED is required to receive a degree in Diesel Technology.

For additional information including regional employment data, completion rates, student characteristics, and employment see http://www.wtb.wa.gov/etp.

Associate in Applied Arts and Sciences Degree in Diesel Technology

This schedule lists all courses required for completion of the Associate in Applied Arts and Sciences Degree in Diesel Technology, but the actual order and specific coursework may vary depending on student placement, start date, and quarter. Please check with your advisor prior to any substitutions.
The required related instruction is noted in bold print. The letter in parenthesis indicates which category of related instruction is represented by the given course as follows:

(W) -Written Communications	(O) - Oral Communications
(R) - Human Relations	(M) - Computation/Mathematics
(J) - Job Seeking Skills	(L) - Leadership

Year One

Fall Quarter	**Credits**
DT 181, Engines I	14
DT 151, Shop Fundamentals/Forklift Training	9
OCSUP 106, Applied Mathematics I (M)	5
Total Credits	**28**

Winter Quarter	**Credits**
DT 162, Machinery Repair I	10
DT 180, Suspension and Alignment	5
DT 185, Drive Trains	5
WELD 141, Welding Basics *	4
WRITE 100, Applied Writing (W)	3
Total Credits	**27**

Spring Quarter	**Credits**
DT 163, Machinery Repair II	8
DT 187, Heating and Air Conditioning	5
DT 183, Electronics I	5
DT 189, Preventive Maintenance	5
DT 299, Leadership (L)	1
Total Credits	**24**

Total Year One Credits	**79**

Year Two

Fall Quarter	**Credits**
DT 266, Advanced Equipment Repair I	10
DT 284, Hydraulics	5
DT 280, Brakes and Air Systems	5
OCSUP 102, Oral Communication in the Workplace (O)	3
Total Credits	**23**

Winter Quarter	**Credits**
DT 267, Advanced Equipment Repair II	10
DT 283, Electronics II	5
DT 281, Engines Advanced	5
OCSUP 103, Job Seeking Skills (J)	3
Total Credits	**23**

Spring Quarter	**Credits**
DT 191, Cooperative Work Experience**	12 - 15
DT 192, Cooperative Seminar (R)	2
Total Credits	**14 - 17**

Total Year Two Credits	**60 - 63**
Total Credits	**139- 142**

* - Any welding course 141 or above will satisfy the welding requirement.

** - DT 191, Cooperative Work Experience may be taken over several quarters. A minimum of 360 hours (12 credits) actual on-the-job mechanical experience is required. Students must have at least 800 hours of actual shop experience to meet the requirements for graduation. At least 600 hours must be on-campus shop experience. Students may also elect to substitute 6 credits of TRK 101 for DT 191. TRK 101 will be taken for 11-12 credits but only 6 credits will be applied to DT 191.

*** - DT 186 Advanced Mechanics and DT 268 Equipment Repair III may be substituted for Cooperative Work Experience with instructor permission.

(J) - AGPR 100, OCSUP 103, PSYC 140
(M) - BUS 112, MATH 049, OCSUP 106
(W) - BUS 137, ENGL 097, ENGL& 101, WRITE 100, WRITE 110
(L) - CLS 180, ELECT DT3
(O) - CMST 102, CMST& 220, OCSUP 102
(R) - DT 192 (Job Psychology)
Transferability:
The AAAS Degree is designed for students planning to enter their chosen career upon graduation. Often only selected credits are considered transferable to public or private baccalaureate institutions

CIP:01.0201
EPC: 125

DT-151 SYALLABUS

Course Identifier: DT-151

Course Title: Shop Fundamentals

Credits: 9

Clock Hours per Week: 10

Quarterly Schedule Course Description: A course designed to introduce, perfect and evaluate basic safety and shop skills necessary for successful completion of the Diesel Mechanics program. Students must be seeking a degree or certificate in Diesel Technology.

Catalog Course Description: A course designed to introduce, perfect and evaluate basic safety and shop skills necessary for successful completion of the Diesel Mechanics program. The course consists of instruction and shop performance exercises in safety, hand and machine tool operation, use and maintenance, hardware identification and other basic shop skills. Forklift operator certification is also taught as a part of this course. Students must be seeking a degree or certificate in Diesel Technology. *Offered*: Fall quarter

Student Learning Assessment Plan:

1. **Intended Skills and Attitude Outcomes (Objectives):**
   A. Demonstrate safe working practices.
   B. Identify unsafe working situations.
   C. Perfect basic shop skills through competencies.
   D. Demonstrate safe machine and hand tool usage.
   E. Demonstrate the ability to identify common hardware.
   F. Demonstrate the ability to measure accurately.
   G. Demonstrate the ability to operate a forklift safely.

2. **Assessment devices: i.e. (Homework, Tests, Attendance, Observation)**
   A. Competencies completed
   B. Hands on testing
   C. Attendance
   D. Competencies scanned into the Skill Manager system.
   E. Shop time tracked using the time clock system.

3. **Assessment Standards**
   A. All competencies must be completed on a pass / fail basis. To pass class score 75% or higher on hands-on tests.
   B. Attendance, See attendance policy located in the student handbook.
   C. Shop hours requirement met.

DT-162,163 SYALLABUS

Course Identifier: DT- 162, 163

Course Title: Machinery Repair I, II

Credits: 11

Clock Hours per Week: 20

Quarterly Schedule Course Description: Controlled laboratory experiences using static and live projects to enhance instruction in engines, power trains, electrical, air conditioning, steering and alignment.

Catalog Course Description: Controlled laboratory experiences using static and live projects to enhance instruction in engines, power trains, electrical, air conditioning, steering and alignment This course involves application of theory and skills associated with academic and skill instruction. ***Offered***: *Winter and Spring quarters*

Student Learning Assessment Plan:

1. **Intended Skills and Attitude Outcomes (Objectives):**
   - A. Demonstrates ability to repair equipment.
   - B. Demonstrates safe working practices
   - C. Demonstrates troubleshooting skills.
   - D. Performs parts ordering
   - E. Practices improving repair time on projects
   - F. Tracks competencies using the Skill Manager system
   - G. Tracks shop time using the time clock system

2. **Assessment devices: i.e. (Homework, Tests, Attendance, Observation)**
   - A. Attendance
   - B. Projects completed
   - C. Daily time log
   - D. Various skills entered into Skill Manager system
   - E. Record lab time using the time clock system

3. **Assessment Standards**
   - A. Attendance. See student handbook.
   - B. Projects. Quality of work, time to perform task, attitude while working on project. Note: students are working on various projects, no two projects are alike.
   - C. Daily time log kept to record time on project compared to industry standards for project completion. To be completed daily.
   - D. Competencies for live work entered into the Skill Manager system. Competencies are to be scanned into the system as they are performed.
   - E. Time scanned in to the time clock system.

DT-180 SYALLABUS

Course Identifier: DT- 180

Course Title: Suspension and alignment

Credits: 5

Clock Hours per Week: 12.5

Quarterly Schedule Course Description: A study of suspensions as found on medium and heavy duty vehicles. Alignment of axles and wheels is also covered. Students must be seeking a degree or certificate in Diesel Technology.

Catalog Course Description: A study of suspensions as found on medium and heavy duty vehicles. Alignment of axles and wheels is also covered. Topics include Alignment principles and terminology, Spring suspensions, air suspensions, Beam suspensions, Tire wear identification, and wheel safety. Students must be seeking a degree or certificate in Diesel Technology. ***Offered***: *Winter quarter*

Student Learning Assessment Plan:

1. Intended Skills and Attitude Outcomes (Objectives):

A. Demonstrate knowledge of alignment principles and terminology
B. Demonstrate knowledge of front suspension systems
C. Demonstrate knowledge of rear suspension systems. Spring, Air, and Beam.
D. Demonstrate knowledge of tire wear characteristics.
E. Demonstrate knowledge of wheel safety, handling, and repair
F. Demonstrate the ability to distinguish between basic types of wheels
G. Demonstrate knowledge of tire and wheel sizes
H. Demonstrate the ability to identify wheel mounting hardware
I. Demonstrate the ability to track appropriate competencies using the Skill Manager system
J. Track shop time using the time clock system.

2. Assessment devices: i.e. (Homework, Tests, Attendance, Observation)

A. Unit tests
B. Competency completion
C. Attendance
D. Classroom discussion
E. Skill Manager system, competencies scanned.
F. Shop time tracked-minutes, hours.

3. Assessment Standards

A. Unit tests - 70% or higher is passing.
B. All competencies must be completed (on a pass fail basis) to pass course.
C. Attendance: See student handbook.
D. Participation in classroom discussions
E. Competencies for Suspension and alignment scanned into skill manager. **Competencies are to be scanned into the system as they are performed**.
F. Minimum requirements for shop hours attained.

DT-181 SYALLABUS

Course Identifier: DT-181

Course Title: Engines

Credits: 7-14

Clock Hours per Week: 20

Quarterly Schedule Course Description: An in-depth study of diesel engines. Students must be seeking a degree or certificate in Diesel Technology.

Catalog Course Description: An in-depth study of diesel engines. Theory of operation, testing and rebuilding. Students must be seeking a degree or certificate in Diesel Technology. ***Offered***: *Fall quarter*

Student Learning Assessment Plan:

1. **Intended Skills and Attitude Outcomes (Objectives):**
   - A. Demonstrate knowledge of the theoretical fundamentals involved with internal combustion engines.
   - B. Demonstrate the ability to use and knowledge of common shop tools and equipment necessary to rebuild engines.
   - C. Demonstrate specific skills in the rebuilding of engines, both gas and diesel.
   - D. Analyze premature failure problems.
   - E. Ability to troubleshoot engine systems problems.
   - F. Ability to track engines competencies using the Skill Manager system.
2. **Assessment devices: i.e. (Homework, Tests, Attendance, Observation)**
   - A. Engine rebuild
   - B. Tear down and specification sheet
   - C. Unit tests
   - D. Attendance
   - E. Competencies tracked using the Skill Manager system
   - F. Shop time tracked using the time clock system.
3. **Assessment Standards**
   - A. All competencies must be completed to pass class.
   - B. Minimum of 70% on all exams.
   - C. Attendance: See attendance standards in student handbook.
   - D. Competency tracking
   - E. Shop hour requirement met.

DT-183 SYLLABUS

Course Identifier: DT 183

Course Title: Electronics

Credits: 5

Clock Hours per Week: 12.5

Quarterly Schedule Course Description: Theory, troubleshooting and repair of mobile electrical systems. Students must be seeking a degree or certificate in Diesel Technology.

Catalog Course Description: Theory, troubleshooting and repair of mobile electrical systems. Course covers charging, starting, ignition and accessory electrical systems. Students must be seeking a degree or certificate in Diesel Technology. **Offered**: Spring quarter

Student Learning Assessment Plan:

1. Intended Skills and Attitude Outcomes (Objectives):

A. Student will show knowledge of electrical theory and magnetism.
B. Demonstrate the ability to read and follow electrical symbols.
C. Demonstrate the ability to test electrical circuits.
D. Show the ability to test and maintain batteries.
E. Perform charging and starting systems tests.
F. Demonstrate the ability to troubleshoot and adjust ignition systems.
G. Ability to track competencies using the Skill Manager system.
H. Ability to track shop time using the time clock system.

2. Assessment devices: i.e. (Homework, Tests, Attendance, Observation)

A. Unit tests
B. Competencies completed.
C. Attendance
D. Ability to track competencies using the Skill Manager system.
E. Homework assignments.
F. Lab time tracked using time clock system.
G. Hours tracked in shop.

3. Assessment Standards

A. Unit tests. 70% or higher is passing
B. All competencies must be completed to pass course.
C. Attendance. See attendance policy in the student handbook.
D. All appropriate competencies scanned using the skill manager system.
E. Minimum requirement for shop hours attained.

DT-185 SYLLABUS

Course Identifier: DT 185

Course Title: Drive Trains

Credits: 5

Clock Hours per Week: 12.5

Quarterly Schedule Course Description: A study of the various components found in the drive train. Students must be seeking a degree of certificate in Diesel Technology.

Catalog Course Description: A study of the various components found in the drive train system. Course includes theory, operation, troubleshooting and repair of clutches, transmissions, torque converters, drive lines, differentials. Students must be seeking a degree or certificate in Diesel Technology. ***Offered***: *Winter quarter*

Student Learning Assessment Plan:

1. Intended Skills and Attitude Outcomes (Objectives):

A. Display knowledge of drive train theory.
B. Demonstrate knowledge of clutches, differentials, transmissions, torque converters, and final drives.
C. Demonstrate the ability to tear down and rebuild such devices.
D. Demonstrate safety while working on drive trains.
E. Identify problems in drive train systems and suspension systems.
F. Ability to use the Skill Manager system to track competencies.
G. Ability to track shop hours using the time clock system.

2. Assessment devices: i.e. (Homework, Tests, Attendance, Observation)

A. Unit tests
B. Competency completion
C. Attendance
D. Classroom discussion
E. Skill Manager system, competencies scanned.
F. Shop hours tracked using the time clock system.

3. Assessment Standards

A. Unit tests - 70% or higher is passing.
B. All competencies must be completed (on a pass fail basis) to pass course.
C. Attendance: See student handbook.
D. Participation in classroom discussions
E. Competencies for Drive Trains and suspensions scanned into skill manager.
F. Minimum shop hour requirement achieved.

DT-186 SYLLABUS

Course Identifier: DT 186

Course Title: Advanced Mechanics

Credits: 5-10

Clock Hours per Week: 20

Quarterly Schedule Course Description: A study of specialized machinery. Prerequisite: Instructor permission required.

Catalog Course Description: A study of specialized machinery. Study and skill gained through working on specialized equipment such as farm equipment, logging equipment trucks and heavy equipment. Prerequisite: Instructor permission. ***Offered***: *All quarters*

Student Learning Assessment Plan:

1. Intended Skills and Attitude Outcomes:

A. Perfect specialized skills as related to equipment.
B. Demonstrate professional attitude.
C. Improve time of task completion, to attain industry standard.
D. Ability to track competencies using the Skill Manager system.

2. Assessment devices: i.e. (Homework, Tests, Attendance, Observation)

A. Project
B. Attitude
C. Time to complete task
D. Track competencies using the Skill Manager system.
E. Clock hours using shop time clock.

3. Assessment Standards

A. Successful completion of project.
B. Professional attitude maintained.
C. Measure time on task against industry standard.
D. All competencies completed entered into Skill Manager.
E. All shop hours accounted for using time clock.

DT-187 SYALLABUS

Course Identifier: DT-187

Course Title: Heating and Air-conditioning

Credits: 5

Clock Hours per Week: 12.5

Quarterly Schedule Course Description: Theory, troubleshooting and repair of mobile air conditioning systems. Students must be seeking a degree or certificate in Diesel Technology.

Catalog Course Description: Theory, troubleshooting and repair of mobile air conditioning systems. Course covers HVAC theory, components, servicing, electrical circuits and troubleshooting. Students must be seeking a degree or certificate in Diesel Technology. ***Offered***: *Spring quarter*

Student Learning Assessment Plan:

1. **Intended Skills and Attitude Outcomes (Objectives):**
   A. Demonstrate the knowledge of air conditioning theory.
   B. Demonstrate the ability to troubleshoot and repair air conditioning systems.
   C. Demonstrate the ability to work safely with various refrigerants.
   D. Demonstrate the ability to track HVAC competencies using the Skill Manager system.
   E. Demonstrate the ability to track shop hours using the time clock system.

2. **Assessment devices: i.e. (Homework, Tests, Attendance, Observation)**
   A. Unit tests
   B. Competencies completed.
   C. Attendance
   D. Scan appropriate competencies using the skill manager system.
   E. Home work
   F. Track lab time using the time clock system

3. **Assessment Standards**
   A. Unit tests. 70% or higher is passing
   B. All competencies must be completed to pass course.
   C. Attendance. See attendance policy in the student handbook.
   D. All appropriate competencies scanned using the skill manager system.
   E. Time logged using the time clock system

DT-189 SYALLABUS

Course Identifier: DT-189

Course Title: Preventive Maintenance

Credits: 5

Clock Hours per Week: 5

Quarterly Schedule Course Description: A course covering preventive maintenance on medium and heavy duty vehicles. Students must be seeking a degree or certificate in Diesel Technology.

Catalog Course Description: A course covering preventive maintenance on medium and heavy duty vehicles. Topics include truck classifications, P.M. programs, Out of service criteria, wheels and rims, frame and cross-members, trailer maintenance, and coupling devices. Students must be seeking a degree or certificate in Diesel Technology. *Offered*: Fall quarter

Student Learning Assessment Plan:

1. **Intended Skills and Attitude Outcomes (Objectives):**
   - A. Demonstrate knowledge of ASE certifications
   - B. Demonstrate the ability to distinguish different truck classifications
   - C. Demonstrate knowledge of P.M. programs
   - D. Demonstrate knowledge of Out of Service criteria
   - E. Demonstrate knowledge of P.M. scheduling
   - F. Demonstrate knowledge of proper lubricants
   - G. Demonstrate knowledge of proper winterizing of vehicles
   - H. Demonstrate the ability to perform a lube job
   - I. Demonstrate knowledge of wheel and rim service
   - J. Demonstrate knowledge of frame repair
   - K. Demonstrate knowledge of fifth wheel and coupling devices
   - L. Demonstrate knowledge of proper trailer maintenance
   - M. Demonstrate the ability to track appropriate competencies using the Skill Manager system
   - N. Demonstrate the ability to track shop hours using the time clock system.
2. **Assessment devices: i.e. (Homework, Tests, Attendance, Observation)**
   - A. Competencies completed
   - B. Unit tests
   - C. Attendance
   - D. Competencies scanned into the Skill Manager system
   - E. Lab time tracked using the time clock system
3. **Assessment Standards**
   - A. All competencies must be completed on a pass / fail basis. To pass class score 75% or higher on hands-on tests.
   - B. Attendance, See attendance policy located in the student handbook.
   - C. Test grades, 70% or higher to pass
   - D. Competencies scanned into the Skill manager system
   - E. Lab time tracked using the time clock system-minimum requirement met.

DT-191 SYLLABUS

Course Identifier: DT 191

Course Title: Cooperative Work Experience

Credits: 1– 15, 1 credit = 30 hrs

Clock Hours per quarter: 360 hours required total for course, 180 hours for those taking TRK 101 for 11 credits.

Quarterly Schedule Course Description: Students earn credit while employed by a related business. Students may substitute 3 credits of TRK 101 for 3 credits of DT 191. Prerequisite: Instructor permission.

Catalog Course Description: Students earn credit while employed by a related business. On the job training supervised by their employer and/or instructor. Pre-requisite: Instructor permission. ***Offered*** *all quarters.*

Student Learning Assessment Plan:

1. Intended Skills and Attitude Outcomes (Objectives):

A. Student states objectives for job when completing the Cooperative Education Job-Related Learning Objectives form prior to employment. Objectives vary according to type of employment.

2. Assessment devices: i.e. (Homework, Tests, Attendance, Observation)

A. Cooperative education employer evaluation form. Completed by employer.
B. Learning objectives form. Completed by student.
C. Work hours accounted for using work logs and/or time clock.
D. Competencies entered into the Skill Manager system.

3. Assessment Standards

A. Standards for learning objectives attained during employment are stated on evaluation forms and are graded by employer according to learning objectives form.
B. Timely completion of all student forms.
C. All work hours accounted for. On campus jobs must use time clock and work logs.
D. All completed competencies entered into skill manager, for on campus workers.

DT-192 SYLLABUS

Course Identifier: DT 192

Course Title: Cooperative Seminar (Job Psychology)

Credits: 2

Clock Hours per quarter: 10

Quarterly Schedule Course Description: Students earn credit while employed by a related business. Co-requisite: DT 191.

Catalog Course Description: Explore issues related to their cooperative work experience focusing on effective workplace relationships. Co-requisite: DT 191: *All quarters*

Student Learning Assessment Plan:

1. Intended Skills and Attitude Outcomes (Objectives):

A. Student states objectives for job when completing the Cooperative Education Job-Related Learning Objectives form prior to employment. Objectives vary according to type of employment.

2. Assessment devices: i.e. (Homework, Tests, Attendance, Observation)

A. Cooperative education employer evaluation form. Completed by employer.
B. Learning objectives form. Completed by student.
C. Ability to track competencies using the Skill Manager system.

3. Assessment Standards

A. Standards for learning objectives attained during employment are stated on evaluation forms and are graded by employer according to learning objectives form.
B. Timely completion of all student forms.

DT-199 SYLLABUS

Course Identifier: DT 199
Course Title: Special Topics

Credits: 1 - 11
Clock Hours per Week: Varies, up to 26

Quarterly Schedule Course Description: An open-ended course to allow individual student development, operated on a contract basis.

Catalog Course Description: Study and train to meet established local needs in the diesel mechanics industry, supplemental to courses currently offered. ***Offered***: *By Instructor permission*

Student Learning Assessment Plan:

1. Intended Skills and Attitude Outcomes (Objectives):

A. Individual outcomes as written in contract.

2. Assessment devices: i.e. (Homework, Tests, Attendance, Observation)

A. Project
B. Record keeping
C. Other outcomes evaluated as written in contract.
D. Attendance
E. Competencies entered into the Skill Manager system.
F. Shop hours tracked using time clock.

3. Assessment Standards

A. Quality of project work.
B. Accuracy of records kept.
C. Contract outcomes evaluated as per contract.
D. Attendance. See student handbook.
E. All competencies entered into skill manager system.
F. All shop hours accounted for using time clock.

DT-266, 267,268 SYLLABUS

Course Identifier: DT 266, 267, 268
Course Title: Advanced Equipment Repair I, II, III
Credits: 10
Clock Hours per Week: 20

Quarterly Schedule Course Description: Actual job shop experience (on campus). Prerequisite: Must have completed at least two quarters of the Diesel Technology Program.

Catalog Course Description: Actual job shop experience (on-campus). Students work on equipment with a student service manager and under the supervision of an instructor. Student must have completed at least two quarters of Diesel Technology. *Offered: Fall, Winter, Spring quarters*

Student Learning Assessment Plan:

1. Intended Skills and Attitude Outcomes (Objectives):

A. Demonstrate professionalism.
B. Perform tasks in a timely manner.
C. Practice customer relations.
D. Practice competent parts ordering.
E. Ability to produce quality work.
F. Ability to track competencies using the Skill Manager system.
G. Ability to track lab time using the time clock system.
H. Ability to fill out daily work log in an appropriate manner.

2. Assessment devices: i.e. (Homework, Tests, Attendance, Observation)

A. Attendance.
B. Projects or tasks.
C. Attitude.
D. Keep track of lab work using daily lab sheets.
E. Appropriate competencies scanned into the Skill Manager system.
F. Use time clock system to track lab time.

3. Assessment Standards

A. Attendance: See attendance policy in the student handbook.
B. Timely completion of project.
C. Maintenance of professional attitude.
D. Daily log kept to record time on project compared to industry standards for project completion. Must be legible and professional.
E. Live work competencies scanned into the Skill Manager system. Competencies are to be scanned into the system as they are performed.
F. Shop time tracked using the time clock system. Minimum hour requirement.

DT-280 SYLLABUS

Course Identifier: DT-280

Course Title: Brakes and Air systems

Credits: 5

Clock Hours per Week: 12.5
(2.5 hrs. / day x 5 days x wk –
Course runs 5 weeks only)

Quarterly Schedule Course Description: A study of air and brake systems as found on medium and heavy duty vehicles. Students must be seeking a degree or certificate in Diesel Technology.

Catalog Course Description: A study of air and brake systems as found on medium and heavy duty vehicles. Topics include air and hydraulic systems, air drum brakes, air disc brakes, hydraulic drum brakes, hydraulic disc brakes, air system schematics, air valves and controls, air compressors and driers and troubleshooting and repair of brake systems. Students must be seeking a degree or certificate in Diesel Technology. ***Offered***: *Fall quarter*

Student Learning Assessment Plan:

1. **Intended Skills and Attitude Outcomes (Objectives):**
   A. Demonstrate knowledge of hydraulic and air brake terminology.
   B. Demonstrate knowledge of ABS and ATC theory.
   C. Demonstrate knowledge of air and hydraulic brake circuits.
   D. Demonstrate the ability to repair air and hydraulic foundation brakes.
   E. Demonstrate the ability to diagnose air and hydraulic brake malfunctions.
   F. Demonstrate knowledge of brake system safety.
   G. Demonstrate the ability to track brake competencies using the Skill Manager system.

2. **Assessment devices: i.e. (Homework, Tests, Attendance, Observation)**
   A. Unit tests
   B. Competencies
   C. Hands on testing
   D. Attendance
   E. Competency tracking

3. **Assessment Standards**
   A. Unit tests - 70% or higher to pass
   B. All competencies must be completed to pass course.
   C. Attendance: See attendance policy in student handbook.
   D. Brake competencies entered into the Skill Manager system

DT-281 SYALLABUS

Course Identifier: DT-281

Course Title: Engines Advanced

Credits: 5

Clock Hours per Week: 12.5

Quarterly Schedule Course Description: A detailed study and analysis of mechanical and electronic diesel injection systems. Students must be seeking a degree or certificate in Diesel Technology.

Catalog Course Description: A detailed study and analysis of mechanical and electronic diesel injection systems. Systems operation, testing and repair techniques. Students must be seeking a certificate or degree in Diesel Technology. ***Offered***: *Winter quarter*

Student Learning Assessment Plan:

1. **Intended Skills and Attitude Outcomes (Objectives):**
   - A. Knowledge of diesel combustion theory and terminology.
   - B. Demonstrate knowledge of the properties of various grades of diesel fuel.
   - C. Demonstrate knowledge of fuel filtration and storage systems.
   - D. Analyze combustion chamber design and relate it to fuel system operation.
   - E. Diagnose and repair intake and exhaust system problems.
   - F. Demonstrate knowledge of the theory governing engine speed and be able to adjust and repair governing systems, mechanical and electronic systems.
   - G. Demonstrate working knowledge of diesel injection pump and injector operation and service.
   - H. Demonstrate the ability to troubleshoot and diagnose starting and running problems inherent to diesel fuel systems.
   - I. Perform tune-up and adjustment procedures on diesel engines.
   - J. Knowledge of the history of the diesel engine.
   - K. Ability to use the Skill Manager system to track competencies.
   - L. Ability to track lab hours using the time clock system.
2. **Assessment devices: i.e. (Homework, Tests, Attendance, Observation)**
   - A. Competency based testing
   - B. Projects
   - C. Unit tests
   - D. Classroom discussions
   - E. Attendance
   - F. Scanning applicable skills and competency levels into the Skill Manager system
   - G. Keep track of lab work using daily lab sheets
   - H. Track shop time using the time clock system
3. **Assessment Standards**
   - A. All competencies must be completed to pass.
   - B. Completion of projects.
   - C. Participation in classroom discussions
   - D. Test scores: 90-100% = A, 80-89% = B,70-70% =C,60-69% =D, below 60% = F
   - E. Attendance: See student handbook.
   - F. Skills for diesel fuel systems scanned into Skill Manager System. **Competencies are to be scanned into the system as they are performed.**
   - G. **Shop time tracked using the time clock system. Minimum requirement.**
   - H. **Completed lab sheets turned in daily**

DT-283 SYLLABUS

Course Identifier: DT-283

Course Title: Electronics II

Credits: 5

Clock Hours per Week: 12.5

Quarterly Schedule Course Description: A study in medium and heavy duty vehicle electrical systems. Students must be seeking a degree or certificate in Diesel Technology.

Catalog Course Description: A study in medium and heavy duty vehicle electrical systems. Topics include electronic signals, microprocessors, integrated circuits, connector and terminal identification and repair, and multiplex systems. Students must be seeking a degree or certificate in Diesel Technology. ***Offered***: *Winter quarter*

Student Learning Assessment Plan:

1. **Intended Skills and Attitude Outcomes (Objectives):**
   A. Demonstrate the ability to identify kinds of electronic signals
   B. Demonstrate knowledge of microprocessors
   C. Demonstrate knowledge of integrated circuits
   D. Demonstrate the ability to use an electronic service tool
   E. Demonstrate knowledge of trouble code types
   F. Demonstrate the ability to identify types of terminals and connectors
   G. Demonstrate the ability to troubleshoot an electronic system
   H. Demonstrate knowledge of multiplex electronic systems
   I. Demonstrate the ability to track electronic competencies using the Skill Manager system.
   J. Demonstrate the ability to clock lab hours using the time clock system.

2. **Assessment devices: i.e. (Homework, Tests, Attendance, Observation)**
   A. Unit tests
   B. Competencies completed.
   C. Attendance
   D. Scan appropriate competencies using the skill manager system.
   E. Use time clock system to track lab time
   F. Keep track of lab work using daily lab sheets

3. **Assessment Standards**
   A. Unit tests. 70% or higher is passing
   B. All competencies must be completed to pass course.
   C. Attendance. See attendance policy in the student handbook.
   D. All appropriate competencies scanned using the skill manager system.
   E. Track shop time using the time clock system.
   F. Completed lab sheets turned in daily

DT-284 SYALLABUS

Course Identifier: DT-284

Course Title: Hydraulics

Credits: 5

Clock Hours per Week: 12.5

Quarterly Schedule Course Description: A study of hydraulic systems as found on mobile equipment. Students must be seeking a degree or certificate in Diesel Technology.

Catalog Course Description: A study of hydraulic systems as found on mobile equipment. Course includes theory, operation, troubleshooting and service of pumps, cylinders, valves, motors, controls and accessories found on mobile hydraulic systems. Schematics and system design are also discussed. Students must be seeking a certificate or degree in Diesel Technology. ***Offered***: *Fall quarter*

Student Learning Assessment Plan:

1. **Intended Skills and Attitude Outcomes (Objectives):**
   - A. Demonstrate the ability to explain the laws and principles of hydraulics.
   - B. Demonstrate the ability to identify hydraulic symbols and read schematics.
   - C. Perform tear down and reassembly of hydraulic components.
   - D. Demonstrate the ability to identify types of seals and packing.
   - E. Demonstrate the ability to identify hydraulic accessories.
   - F. Demonstrate the ability to identify common lines, fittings and seals.
   - G. Perform diagnosis and testing of components and systems.
   - H. Demonstrate the ability to identify good maintenance practices.
   - I. Demonstrate safe working practices.
   - J. Demonstrate the ability to track hydraulic competencies using the Skill Manager system.
   - K. Demonstrate the ability to track lab hours using the time clock system.
2. **Assessment devices: i.e. (Homework, Tests, Attendance, Observation)**
   - A. Unit tests
   - B. Competencies
   - C. Hands on testing
   - D. Attendance
   - E. Competencies scanned into the Skill Manager system.
   - F. Shop hours logged into the time clock system.
3. **Assessment Standards**
   - A. Unit tests - 70% or higher to pass
   - B. All competencies must be completed to pass course.
   - C. Hands-on test - 75% or higher to pass.
   - D. Attendance: See attendance policy in student handbook.
   - E. Hydraulic competencies scanned into Skill Manager.
   - F. Shop hours tracked using the time clock system. Minimum requirement.

DT-297 SYLLABUS

Course Identifier: DT 297

Course Title: Special Projects

Credits: 1 - 11

Clock Hours per Week: Varies, up to 26

Quarterly Schedule Course Description: An open-ended course to allow individual student development, operated on a contract basis.

Catalog Course Description: An open-ended course to allow individual student development, operated on a contract basis. *Offered: By instructor permission*.

Student Learning Assessment Plan:

1. Intended Skills and Attitude Outcomes (Objectives):

A. Individual outcomes as written in contract.

2. Assessment devices: i.e. (Homework, Tests, Attendance, Observation)

A. Project
B. Record keeping
C. Other outcomes evaluated as written in contract

3. Assessment Standards

A. Quality of project work.
B. Accuracy of records kept.
C. Contract outcomes evaluated as per contract.

DT-299 SYALLBUS

Course Identifier:	DT-299
Course Title:	Student Leadership
Credits:	1-10
Clock Hours per Week:	Varies, up to 10 total
Quarterly Schedule Course Description:	A competency based class to promote student responsibility and leadership. Prerequisite: Must have completed at least two quarters of Diesel Technology Program.
Catalog Course Description:	A competency based class to promote student responsibility and leadership. Prerequisite: Must have completed at least two quarters of Diesel Technology Program. ***Offered***: *Fall, Winter and Spring quarters*
Student Learning Assessment Plan:	
1. Intended Skills and Attitude Outcomes (Objectives):	A. Demonstrate leadership and responsibility.
2. Assessment devices: i.e. (Homework, Tests, Attendance, Observation)	A. Competency sheet.
3. Assessment Standards	A. All competencies must be met to pass course.

Diesel Technology~Student Tool List

First Year Students:

Socket Set – 1/4" Drive

- ☐ ¼ " - ½" Standard Depth
- ☐ ¼" - ½" Deep
- ☐ 4mm-13mm Standard Depth
- ☐ 4mm-13mm Deep
- ☐ Ratchet
- ☐ Extensions – 3", 6"
- ☐ Flex/Universal Joint

Socket Set – 3/8" Drive

- ☐ 3/8"-¾" Standard Depth
- ☐ 3/8"-¾" Deep
- ☐ 10mm-19mm Standard Depth
- ☐ 10mm-19mm Deep
- ☐ Ratchet
- ☐ Extensions – 3", 6", 12", 18"
- ☐ Universal Joint

Socket Set -1/2" Drive

- ☐ 7/16" – 1 1/4" Standard Depth
- ☐ 7/16" – 1 1/4" Deep
- ☐ 10mm-24mm Standard Depth
- ☐ 10mm-24mm Deep
- ☐ Ratchet
- ☐ Breaker Bar
- ☐ Extensions – 3", 6", 12"

Combination Wrenches

- ☐ ¼"- 1 1/4" Standard
- ☐ 6mm-24mm Metric

Tubing Wrenches

- ☐ 3/8" - ¾"
- ☐ 10mm-18mm

Hex Wrenches (Allen)

- ☐ Fractional .050" – 3/8"
- ☐ Metric 2mm-10mm

Screw Drivers – Blade Type

- ☐ Stubby
- ☐ ¼" x 6"
- ☐ ¼" x 9"
- ☐ 3/8" x 9"
- ☐ 3/8" x 16"
- ☐ Offset

Screw Drivers – Phillips

- ☐ #2 Stubby
- ☐ #1 Tip
- ☐ #2 Tip
- ☐ #3 Tip
- ☐ Offset

Torx Bits

- ☐ T-8
- ☐ T-10
- ☐ T-15
- ☐ T-20
- ☐ T-25
- ☐ T-27
- ☐ T-30
- ☐ T-40
- ☐ T-50
- ☐ T-55

Pliers

- ☐ 6" Slip Joint
- ☐ 6" Needle Nose
- ☐ 7" Diagonal Cutter
- ☐ 12" Channel Lock (Water Pump)
- ☐ Long Reach End Cutter (Channel Lock #748)
- ☐ 10" Vise Grip Pliers (10WR)
- ☐ Electrical Crimper/Stripper

Snap/Retaining Ring Pliers

- ☐ Internal Retaining Ring Pliers
- ☐ External Retaining Ring Pliers
- ☐ Snap Ring Pliers (Snap-On style SRP2)

Files (with handles)

- ☐ Flat 10" Mill Bastard
- ☐ Rounds 8"-10"
- ☐ Three Cornered

Punch and Chisels

- ☐ Center Punch
- ☐ Pin Punch – 1/ 8", 3/16", ¼", 5/16"
- ☐ Taper Punch – 3/8", ½", 5/8"
- ☐ Brass Drift - ¾"
- ☐ Cape Chisel – 5/16"
- ☐ Cold Chisel – 3/8", ¾'

Pry Bars

- ☐ 16" Rolling Head
- ☐ 18-24" Alignment/Pry Bar

Electrical Tools

- ☐ Digital Multi-Meter (min. 10meg ohms impedance)
- ☐ 12 Volt Test Light or LED Circuit Tester
- ☐ Remote Starter Switch

Measuring Tools

- ☐ Tape Measure 25 foot
- ☐ Dial Caliper 0-6" (mechanical)
- ☐ Feeler Gauge Set Blade Type .015 - .035"
- ☐ Steel Rule/Machinist Rule 6"

Small Tools

- ☐ Flash Light
- ☐ Pocket Knife
- ☐ O-Ring Pick Set
- ☐ Inspection Mirror
- ☐ Flexible Pick Up Tool(magnetic)
- ☐ Flexible Pick Up Tool(claw type)
- ☐ Hack Saw with blades
- ☐ Tubing Cutter
- ☐ Gasket/Carbon Scraper
- ☐ Air Blow Gun (meeting OSHA Standard)
- ☐ Oil Can

Safety Equipment

- ☐ Safety Glasses
- ☐ Hearing Protectors (ear muff type)
- ☐ Leather Work Boots

Tool Storage

- ☐ Roll Away Tool Box with Key Lock

Second Year Students:

Special Tools

- ☐ Torque Wrench – 3/8" Drive
- ☐ Torque Wrench - ½" Drive (250 ft-lb)
- ☐ ½" Drive, Air Impact Gun (390 ft-lb)
- ☐ Impact Socket Set - ½" Drive. ½' – 1 1/4"
- ☐ ½" drive sockets, 1 5/16" – 1 ½"
- ☐ Sledge Hammer, 12 lb.
- ☐ Combination end wrenches, 1 5/16" – 1 ½'
- ☐ Top Box to complete tool storage

Recommended Tools for Industry

- ☐ Ignition wrench set, fractional and metric
- ☐ Bearing separator set
- ☐ Jumbo Combination wrench set to 2"
- ☐ Angle head wrench set 3/8"- 1¼"
- ☐ ½"Drive impact wobble sockets ½" – 1"
- ☐ ¾' torque wrench (600 ft-lb)
- ☐ Manifold gauge set, R-134A
- ☐ ¾" Drive socket set ¾ - 2 3/8" standard and deep, chrome or industrial finish

DIESEL TECHNOLOGY

STUDENT PROGRESS RECORD

SID:_____/___/_____ NAME:_____

ADDRESS:_____ CITY:_____

HOME/CELL PHONE:_____ WORK PHONE:_____

E-MAIL ADDRESS: _____

COURSE RECORD

COURSE	ENR QTR/ YR	COMP QTR/YR	COURSE	ENR QTR/ YR	COMP QRT/YR
DT 151 Shop Fundamentals/Forklift Training			DT 280 Brakes & Air Systems		
DT 162, Machinery I			DT 281 Engines Advanced		
DT 163 Machinery Repair II			DT 283 Electronics II		
DT 180 Suspension & Alignment			DT 284 Hydraulics		
DT 181 Engines I			DT 191 Co-0p Work Experience		
DT 183 Electronics I			DT 192- Cooperative Seminar		
DT 185 Drive Trains			DT 297 Special Projects		
DT 186 Advanced Mechanics			OCSUP 102 Oral Communication		
DT 187 Heating & Air Conditioning			OCSUP 103 Job Seeking Skills		
DT 189 Preventative Maintenance			OCSUP 106 Applied Mathematics I		
DT 266 Advanced Equipment Repair I			WRITE 100 Applied Writing		
DT 267 Advanced Equipment Repair II			WELD 141 Welding Basics		
DT 268 Advanced Equipment Repair III					

NOTES: