

Power Train Systems

Spring Term 2022

CST 136 HVE 136

Class meets MTWH; 7AM - 10:50AM ; Room – AT-H 105

Instructor: Gar Burroughs

Email:Burroug@linnbenton.edu

Phone 541-917-4616

Office hours: By appointment

The Textbook:

CDX Automotive bundle, consisting of:

- Fundamentals of Medium/Heavy Duty Commercial Vehicle Systems, ISBN: 978-1-284-15093-3; with internet access pass (two year)

Course Outcomes: In this class you will explore the theory, diagnosis, service, and repair for Powertrain systems found in modern heavy equipment. All the learning activities of the class are designed to improve your ability to practice and perform these **Course Outcomes**:

1. Follow safe shop practices. **Safety is first, last, and always.**
2. Know the operating principles of all major components of heavy equipment and truck power trains.
3. Trace power flow through all gear positions of a transmission.
4. R&R transmissions, drivelines, universal joints and differentials.
5. Diagnose problems, disassemble, inspect, repair and correctly assemble/adjust power train components.
6. Work safely and demonstrate a spirit of cooperation and respect for other students, customers, and staff.
7. Identify and understand the use of shop and specialty tools
8. Use service resources effectively.

Course Schedule: Reading assignments; homework assignments; quizzes and tests and will be due according to the course schedule; with the instructor reserving the right to change the schedule to match class progress in the subject matter. The course homework assignments schedule will be posted to the Google Drive with the students being given access to the same.

Course Schedule: This is a hybrid class consisting of online homework, and at school labs.

Class Expectations:

1. Be on time to class/ lab.
2. Attend and participate in all labs.
3. Complete all assignments.
4. Actively demonstrate and practice appropriate professional, and respectful behavior.

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5. Mute cell phones and all other electronics: all devices are to be off and out of sight; unless being actively used as directed by the instructor.
6. Be prepared for lab: assignments completed, reading completed, bring your Personal Protective Equipment (PPE), tool bag and issued contents, and laptop/tablet.
7. Be academically honest and have integrity.

Required uniform, supplies, and Personal Protective Equipment (PPE):

1. Student ID card
2. Laptop or tablet PC (Cell phone alone is not adequate!) equipped with the technical capabilities to access the CDX online materials; and with a screen size large enough to adequately view the animations and videos in the materials.
3. Safety glasses: Must meet ANSI Z87.1 standards as a minimum requirement (one pair was issued)
4. Closed toed leather work shoes
5. Two (2) Snap-On uniform shirts, or the student's sponsoring company's uniform shirt
6. *Students will be required to wear masks, facial coverings, and to maintain social distancing as required by the state of Oregon.*
7. Closed toed leather work shoes. Recommend with protective toe. Composite toe is preferred over steel toe as it is non-conductive to electricity.
8. Coveralls in good repair; minimum of one set

Lab Safety: No equipment is to be used, or work performed, unless an instructor or instructor assistant is present. Some equipment in the classroom, lab, and shop requires special certification, license(s), training and/or other unique prerequisites before use. **Safety glasses will be worn in the active lab environment.** Safety glasses must meet ANSI Z87.1 standards as a minimum requirement. Contact lenses are not safe, even under safety glasses, and are not recommended. To participate in lab activities, you must first complete "Lab #1: Lab Safety Awareness". You must at all times maintain safe work habits and practices while in the class and lab exercises.

Preparation, Participation, and Attendance: Attendance in class is recorded each class period. Tardiness is recorded as a component of Attendance. Attendance policy for this class is: Come to every class on time; with the reading and homework assignments completed; and be ready to be active learners. If you will be late or absent to a class: send an email to the instructor; and leave a voicemail message on his office phone. Attendance is a component of the Professional Shop Practices portion of the class grade.

Absences Policy: Eight undocumented absences in an 11 week class, shall result in an automatic course grade of F for material

Nonparticipation.

Only absences covered through the Center for Accessibility Resources documentation, or DOCUMENTED emergency absences (for yourself only) will be excused. Job conflicts, oversleeping, car trouble, travel delays, traffic jams, and other minor life events are not considered emergencies.

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Documentation must be physically handed to the instructor within five (5) business days

(Monday through Friday) of the absence for it to be excused.

Lectures, Quizzes, Tests, and Other Academic Activities: Take large amounts of handwritten notes. Hand written notes are allowed to be used as reference for tests and quizzes; unless otherwise stated at the start of the exercise. All answers to homework assignments, quizzes, and tests must be legible: if the instructor can't read the answer, the answer is wrong. This is a component of the Professional Shop Practices portion of the class grade.

Housekeeping: Keep the classroom and all work areas clean and organized as possible. At the end of the class and/or lab session the classroom and work areas will be cleaned; tools and shop equipment cleaned and returned to their proper storage locations; and the AT-H building shared common areas will be cleaned and tidied. Housekeeping is a component of the Professional Shop Practices portion of the class grade.

Cell Phones and Other Electronic Devices

Cell phones, tablets, laptops, PCs and other electronic sources of information will be specifically identified for use if and only if; and only when needed for the specific individual evaluation activity. As a rule, your cell phone must be out of sight at all times during class and turned to "silent"/"mute"/etc. If you must take or make a call, step outside the classroom and return when finished. See Appendix E in the Student Handbook. Appropriate use of cell phones and other electronic devices is a component of the Professional Shop Practices portion of the class grade.

Lab Exercises

Lab exercises present the opportunity to **REPEATEDLY** exercise the skills and techniques presented in class in a controlled setting to sufficiently retain and reinforce the knowledge through repetition. These are the foundation skills of this trade. The homework, quizzes, tests and other administrative activities reinforce the abilities to follow instructions and improve knowledge retention, among other skills. Performance in lab exercises is a 40% component of the overall course grade.

Evaluation

Much of the learning in this course is directly related to the students' involvement in the course activities. Professional Shop Practices include, but are not limited to: Wearing uniform; attendance; time management; attention to details; determination; good manners and etiquette; cleanliness and housekeeping, shop stewardship; tool care, storage and security; and other "soft skills" that the employers value. Professional Shop Practices comprises 10% of the class grade.

Grading

A Professional Shop Practice grade will be recorded for each class period based on: punctuality, safety, teamwork, effective communication, diligence, cleanliness and the proper use of tools, procedures and specifications, and other "soft skills" that the employers value. You must be in class to earn a Professional Shop Practices grade for that day.

Communication

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Verbal - Speak clearly with appropriate language.

Written – Writing with proper spelling, grammar, and punctuation.

Homework and reading assignments will be due according to the associated schedule; with the instructor reserving the right to change the schedule to match class progress in the subject matter.

Quizzes and tests will be due according to the associated schedule; with the instructor reserving the right to change the schedule to match class progress in the subject matter. There will be regular scheduled and random quizzes throughout the class.

NATEF Style Lab Evaluation Performance Standard

0 - No Exposure: no information or practice provided during the program; complete training required.

1 - Exposure only: General information provided with no practice time; close supervision needed; additional training required.

2 - Limited practice: Has practiced job during training program; additional training required to develop skill

3 - Moderately skilled: Has performed job independently during the training program; limited additional training may be required.

4 - Skilled: Can perform job independently with no additional training.

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PLEASE NOTE! CONSTRUCTION-FORESTRY STUDENTS MUST COMPLETE THE FOLLOWING JOHN DEERE UNIVERSITY COURSE OR COURSES TO EARN A PASSING GRADE IN THIS CLASS BY THE START OF 10TH WEEK OF THE TERM:

*****John Deere Construction Forestry Program Students*** Syllabus Addendum**

- TBD (To Be Determined)

Grading System:

- Homework and Quizzes30% of final grade
- Lab Activities/ Professional Shop Practices,40% of final grade
- Midterm, and Final Exam.....30% of final grade
- Failure to complete JDU courses will result in an “F” Grade. (CT students only)
- Other sponsored students may also be required by their sponsoring company to complete training similar to the C&F JDU students. These expectations are currently being developed and may be required this Fall term 2018.

At the end of the term you will receive one of these letter grades.

A = 90 - 100%

B = 80 - 89%

C = 70 - 79%

D = 60 - 69%

F = 59% and Below

W - Withdraw; student must select this grade prior to last day of the seventh week of the term. If you decide you must exercise this option, do not wait until the last minute. Contact Registration to confirm the exact details of this decision. To receive a tuition refund, financial aid, and Veterans programs, other criteria affect the exact date and implications to the student: contact the appropriate department well before this general deadline.

Class Work: Homework, labs, reading assignments, quizzes, tests, and all other class work will be due according to the associated schedule. The instructor reserves the right to change the schedule to match class progress in the subject matter. If there is no published schedule for the assignment; the due date will be determined when the material is assigned. The class schedule will then be updated.

Students are responsible for requesting any work missed due to tardiness or absence. Material turned in late will be assessed a 20% penalty each calendar day it is late from the due date. All class material to be turned for a grade must be submitted within two calendar days of their due date; or no credit will be given.

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Learning Styles and Resources

During lecture sessions we will use lecture, discussion, multi-media presentations, PowerPoint presentations, videos, photos, and many other means to present materials.

If you are having difficulty with any of the concepts or procedures in this course, or have a preferred learning style, do not hesitate to talk with me. I am available for consultation or tutoring and will work with you to explore the many resources available to make your education more successful.

The Learning Center is an excellent resource for improving your skills as a lifelong learner and is a great place to study and do homework. They have computers, mini courses on study skills and a very helpful staff. They will help you with any subject you are taking at LBCC. Computer Labs are available on the Albany campus; and in Corvallis, Lebanon and Sweet Home

Center for Accessibility Resources: RCH-105: Students who may need accommodations due to documented disabilities, or who have medical information which the instructor should know, or who need special arrangements in an emergency, should speak with the instructor during the first week of class. If you believe you may need accommodations, but are not yet registered with CFAR, please go to <http://linnbenton.edu/cfar> for steps on how to apply for services or call 541-917-4789.

Personal Conduct: Students will behave in a manner that promotes learning and is respectful of all individuals. The shop rules documents and uniform expectations documents are being revised at the time of typing this edition of the syllabus. These new shop rules and uniform expectations will be officially discussed at the time the final draft of the documents is finalized and approved.

Horseplay is dangerous in a shop setting, and will not be tolerated!

Frustration and Anger Management: It is only natural to become frustrated when the project you're working on does not cooperate. However, that's the nature of the business. Learn to walk away for a while and cool off, re-think what you're doing, and ask for help or advice. Above all else, be professional. Uncontrolled anger can lead to unsafe work habits, which are not tolerated.

Under the Influence: Due to the inherent danger of the shop areas, any student suspected of being under the influence of intoxicants will be asked to leave the shop area.

Request for Special Needs or Accommodations

LBCC is committed to inclusiveness and equal access to higher education. If you have approved accommodations through the Center for Accessibility Resources (CFAR) and would like to use your accommodations in the class, please talk to your instructor as soon as possible to discuss your needs. If you believe you may need accommodations but are not yet registered with CFAR, please visit the [CFAR Website](#) for steps on how to apply for services or call 541-917-4789.

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I _____ have read the syllabus for
“Power Train Systems”, CST 136 HVE 136 for Heavy Equipment/Diesel. I
understand the course syllabus contents and agree to comply with its details
and instructions.

Signature Date

Printed Name

Student X-Number