

### Basic Course Information

Semester:	<b>Fall 2023</b>	Instructor Name:	<b>Pat Barbee</b>
Course Title & #:	<b>Diesel Preventative Maintenance &amp; Inspection AUT 165</b>	Email:	<b>pat.barbee@imperial.edu</b>
CRN #:	<b>10543</b>	Webpage (optional):	
Classroom:	<b>1101</b>	Office #:	<b>1104 A</b>
Class Dates:	<b>8/14/23-12/06/23</b>	Office Hours:	<b>Mondays/Wednesdays 11:10-12:10pm &amp; Tuesdays 5:00-6:00pm &amp; Thursdays 12:00-1:00pm</b>
Class Days:	<b>Mondays/Wednesdays</b>	Office Phone #:	
Class Times:	<b>6:00-9:10 PM</b>	Emergency Contact:	<b>Tisha Nelson: 760-355-6361</b>
Units:	<b>4.0</b>	Class Format:	<b>Face to Face</b>

### Course Description

The Diesel Preventive Maintenance and Inspection course trains students in: theory, design, operation, troubleshooting and maintenance of heavy duty truck and farm equipment. Upon successful completion of this course, the students are prepared to take the Automotive Service Excellence (ASE) Certification Exam in Preventive Maintenance T8. (Nontransferable, AA/AS degree only)

### Course Prerequisite(s) and/or Corequisite(s)

None

### Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Explain how to set up a diesel preventive maintenance inspection program.
2. Explain how to set up a daily walk around inspection for diesel units.
3. Describe the proper steps for preparing the diesel equipment for short and long term stationary storage.
4. Describe the use of troubleshooting charts and service information to pinpoint the source of system problems

## Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. A. Inspect and repair engine systems.
2. B. Inspect and repair cab and hood instruments.
3. C. Check and repair electrical and electronic systems.
4. D. Inspect and repair frame and chassis components.
5. E. Check machine operation and road test.

## Textbooks & Other Resources or Links

Textbook Used: Diesel Engine Technology 9<sup>th</sup> Edition (ISBN 978-1-64564-685-3)

Access to computer, Internet, and word type applications.

Pen and pencils

Standard writing paper and notebook.

Lab days will require: Safety glasses, work footwear (no open toe shoes, slip resistant), proper shirts and pants.

## Course Requirements and Instructional Methods

This course will consist of a variety of instructional methods and assignments including, but not limited to, lectures, class discussions, group activities, interviews, and hands-on shop experiences.

## Course Grading Based on Course Objectives

Grading System:

A – 513-570 of points = Excellent

B – 456-512 of points = Good

C – 399-455 of points = Acceptable

D – 342-398 of points = Below Average

F – 341 points and below = Failing

\*\*\*There are no make-up exams unless arrangements with the instructor are made prior to exam.

Activities	Points
Homework (14 assignments*5pts each)	70
Quizzes (29 quizzes*10pts each)	290
Labs (13 labs*10pts each)	130
Final Exam	80
Total Points	570



## Course Policies

- **Electronic Devices:** Cell phones and electronic devices must be turned off and put away during class, unless otherwise directed by the instructor.
- **Food and Drink:** Food and drink are prohibited in all classrooms. Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed by the instructor.
- **Disruptive Students:** Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the General Catalog.
- **Children in the classroom:** Due to college rules and state laws, only students enrolled in the class may attend; children are not allowed.

**Academic honesty** in the advancement of knowledge requires that all students and instructors respect the integrity of one another's work and recognize the important of acknowledging and safeguarding intellectual property. There are many different forms of academic dishonesty. The following kinds of honesty violations and their definitions are not meant to be exhaustive. Rather, they are intended to serve as examples of unacceptable academic conduct.

**Plagiarism** is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to cite a source correctly, you must ask for help.

**Cheating** is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question. Anyone caught cheating or plagiarizing will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the [General Catalog](#) for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following:

- plagiarism
- copying or attempting to copy from others during an examination or on an assignment
- communicating test information with another person during an examination
- allowing others to do an assignment or portion of an assignment
- using a commercial term paper service.

**Attendance:** A student who fails to attend the first meeting of a class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See [General Catalog](#) for details.

Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped.

Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as excused absences.



## Other Course Information

### Shop/Lab Area Safety

- Safety test must be passed to work in the shop and complete required lab exercise.
- Safety glasses are required to be worn at all times while in the shop area, safety glasses are the student's responsibility (students not wearing safety glasses will be asked to leave lab for that day, no exceptions).
- Clean up your area and any other loose debris, trash, or spills.
- Wear all required safety protection and comply with posted signs.
- No shorts or open toe footwear, always be prepared for lab exercises.
- Comply with tool check out policy and clean tools before returning.
- Damaged or missing tools must be reported immediately. Tools are the students' responsibility.
- Do not perform any work on any vehicle outside the assigned task without permission from your instructor.
- Long hair must be kept in a ponytail or tucked away for safety.
- Jewelry such as rings and necklaces must be put away or tucked in for safety.
- Lab work will cease 20 minutes prior to end of class to allow time for cleaning areas and returning tools.

### Projects

- All projects must be approved by instructor and require a written work order.
- All projects must be removed from campus prior to finals.
- Projects are taken with students at end of class unless approved by instructor.

In addition to standard course curriculum, portions of this course will prepare you for ASE certifications.



## IVC Student Resources

IVC wants you to be successful in all aspects of your education. For help, resources, services, and an explanation of policies, visit <http://www.imperial.edu/studentresources> or click the heart icon in Canvas.

## Anticipated Class Schedule/Calendar

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
Week 1	Syllabus & Introduction Chapter 1: Intro to Diesel Engines Chapter 2: Shop Safety	Safety Test
Week 2	Chapter 3: Tools, Precision Tools & Fasteners Chapter 10: Lubrication Systems Chapter 11: Cooling Systems	Chapter 1&2 ASE Questions homework due Pages 25-26 & 35-36
Week 3	Chapter 4: Principles of Engine Operation Chapter 5: Engine Blocks	Chapter 3,10,11 ASE Questions homework due Pages 59-60, 229-230, 261-262
Week 4	Chapter 6: Crank Shafts Chapter 7: Piston Rings & Connecting Rods	Chapter 4 & 5 ASE Questions homework due Pages 85-86 & 107-108
Week 5	Chapter 8: Cylinder Head & Related Components Chapter 26: Engine reassembly & Installation	Chapter 6 & 7 ASE Questions homework due Pages 129-130 & 151-152
Week 6	Chapter 9: Camshaft & Valve Train Components Chapter 14: Diesel Fuels Chapter 15: Basic Fuel System	Chapter 8 & 26 ASE Questions homework due Pages 177-178 & 543-544
Week 7	Chapter 16: Fuel Filters & Conditioners Chapter 17: Injection System Fundamentals	Chapter 9, 14, & 15 ASE Questions homework due Pages 199-200, 318-319, 335-336
Week 8	Chapter 18: Injection Nozzles Chapter 19: Multiple Plungers Inline Injection Pumps	Chapter 16 & 17 ASE Question homework due Pages 347-348 & 367-368
Week 9	Chapter 20: Distributor Injection Pumps Chapter 21: Unit Injector Fuel Injection System	Chapter 18 & 19 ASE Question homework due Pages 385-386 & 407-408
Week 10	Chapter 22: Basics of Electricity Chapter 24: Diesel Engine Charging Systems	Chapter 20 & 21 ASE Question homework due Pages 423-424 & 433-434
Week 11	Chapter 12: Air Intake Systems	Chapter 22 & 24 ASE Question homework due Pages 461 & 510-511
Week 12	Chapter 23: Electronic Engine Controls & Fuel Injection	Chapter 12 ASE Question homework due Pages 493-494



IMPERIAL VALLEY COLLEGE

Week 13	Chapter 25: Diesel Starting Systems	Chapter 23 ASE Question homework due Pages 493-494
Week 14	Chapter 13: Exhaust Systems	Chapter 25 ASE Question homework due Pages 528-529
Week 15	<b>**NO CLASS THANKSGIVING BREAK**</b>	
Week 16	Chapter 27: Preventative Maintenance & Troubleshooting	Chapter 13 ASE Question homework due Pages 304-305
Week 17	Chapter 28: Career Opportunities & ASE Certification Chapter 29: Workplace Employability Skills FINAL EXAM	FINAL EXAM

**\*\*\*Subject to change without prior notice\*\*\***