Basic Course Information

Semester:	SPRING 2018	Instructor Name:	Vincent Pollizzi
Course Title & #:	Engine Diagnosis and Repair AU T 170	Email:	vincent.pollizzi@imperial.edu
CRN #:	20856	Webpage:	TBD
Classroom:	1103	Office #:	1200
Class Dates:	Monday, February 12, 2018 To Friday, June 8, 2018	Office Hours:	Monday – 11:30 am to 12:30 pm Tuesday – 12:30 pm to 1:30 pm Wednesday – 11:30 am to 12:30 pm Thursday – 12:30 pm to 1:30 pm Office hours held in room 1201 Other times by appointment
Class Days:	Tuesday & Thursday	Office Phone #:	760-355-5748
Class Times:	TU - 6:00 pm to 9:10 pm TH – 6:00 pm to 8:05 pm	Emergency Contact:	760-355-6361 (Dept. Office)
Units:	3.0		

Course Description

This course provides advanced operation and hands on experience of electronic injection systems and their subassemblies. Students will learn operation and repairs of sensors and actuators of injection systems. This class emphasizes diagnostic procedures and techniques using basic and sophisticated test equipment. (CSU)

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. **Research applicable vehicle and service information such as engine management system operation, vehicle service history, service precautions, and service technical bulletins.**
2. **Locate and interpret vehicle and major component identification numbers.**
3. **Check for module communication (including CAN/BUS systems) errors using a scan tool.**

Course Objectives

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

1. Learn about the automotive computer and its functions in relationship to electronic fuel injection. The student will learn how the computer takes in information processes and reacts to inputs. The student will study open and close loop theory and how it controls the fuel system.
2. Learn about sensors and actuators that control the engine operation. The student will learn how sensors send information to the computer to control fuel systems and engine timing. They will also learn proper test procedures for each compound.
3. Learn throttle body, port fuel injection, mechanical and electronic fuel injection. The student will learn to recognize the difference between the systems; how they operated and how to diagnose each system.
4. Learn about turbo changer and supercharger systems and understand the components of each and how each system works. They will also learn how to make some basic diagnosis on these systems.
5. Student will study the theory and operation of crankcase ventilation, air injection systems and catalytic converters and related components. They will learn how to properly diagnose and repair each system with use of four and five gas analyzer.
6. Learn theory and operation of electronic spark timing and why it is important to electronic fuel injection. The student will learn how to check timing and adjust or repair were it is applicable.
7. Learn what exhaust gas recirculation problems and the proper procedure for repair with the use of four and five analyzer.

Textbooks & Other Resources or Links

BOOK: James E. Duffy 2014. *Modern Automotive Technology* 8th Edition. C-W Publisher
ISBN: 9781619603707

CLASS SUPPLIES: Pens, pencils, highlighters, standard writing paper and materials to organize class notes

PERSONAL SAFETY EQUIPMENT: ANSI Z87 rated safety glasses, appropriate footwear for the shop, appropriate shirt and pants for the shop

Course Requirements and Instructional Methods

Methods of Instruction:
During this class the methods of instruction used may include but are not limited to the following:

- Demonstrations
- Discussions
- Group Activities
- Individual Assistance/Guidance
- Shop/Lab Activities
- Lectures
- Simulation/Case Studies
- Audio Visual Presentations
- Computer Assisted Instruction
- Out of Class Assignments

Note on Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.

Course Grading Based on Course Objectives

For successful completion of this course students will need to be present for and participate in all lectures and/or discussions and complete all course assignments in a timely manner in addition to completing all homework, reading, quizzes, tests, and evaluations that will be assigned throughout the semester.

- Your Final Grade will be calculated as an average of the assignments in these four categories:
  - 25% Class Quizzes
  - 25% Homework Assignments
  - 25% Lab/Shop Assignments
  - 25% Evals & Exams
- These categories are made up of all assignments, evaluations, tests, quizzes, the comprehensive final exam, and other exercises given throughout the semester.
- Individual assignments, evaluations, tests, quizzes and other exercises will be based on a scale of zero to 100.

Attendance

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online 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. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and 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.

Classroom Etiquette

- 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 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, no one who is not enrolled in the class may attend, including children.

Shop/ Lab Area:

- 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 students responsibility (students not wearing safety glasses will be ask to leave the class for that day no exceptions).
- Clean up your area and any other loose debris or trash.
- Wear all required safety protection and comply with posted signs.
- No shorts or open toe foot wear, always be prepared to go into the lab area.
- Comply with tool check out policy and return tools clean.
- 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.

Faculty and Staff

All students are required to take direction from any faculty, any issues with direction should be brought up to your instructor, however all staff has the right to direct any student at any time. Please respect the staff's decisions.

Safety Requirements:

For every task perform in this course the following safety requirements must be strictly enforced:
Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.

Parking:

No student parking by the building, the only exception is on lab time if your vehicle is a project (instructor approved). Speed limit must be kept at or under 5MPH.
Parking permit is required at all times.

Projects:

All projects are to be taken with the student's unless otherwise approved by the instructor.
All approved projects must be removed from campus prior to finals.
All projects must have a written work order (R/O).

Shop Maintenance:

All work will cease 20 minutes prior to end of class.
All work areas must be cleaned.
Tools must be cleaned and returned to the tool room.
Any broken or missing tools must be reported immediately. Tools are student's responsibility.

Online Netiquette

- What is netiquette? Netiquette is internet manners, online etiquette, and digital etiquette all rolled into one word. Basically, netiquette is a set of rules for behaving properly online.
- Students are to comply with the following rules of netiquette: (1) identify yourself, (2) include a subject line, (3) avoid sarcasm, (4) respect others' opinions and privacy, (5) acknowledge and return messages promptly, (6) copy with caution, (7) do not spam or junk mail, (8) be concise, (9) use appropriate language, (10) use appropriate emoticons (emotional icons) to help convey meaning, and (11) use appropriate intensifiers to help convey meaning [do not use ALL CAPS or multiple exclamation marks (!!!!)].

Academic Honesty

Academic honesty in the advancement of knowledge requires that all students and instructors respect the integrity of one another's work and recognize the importance 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: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

Additional Student Services

Imperial Valley College offers various services in support of student success. The following are some of the services available for students. Please speak to your instructor about additional services which may be available.

- CANVAS LMS. Canvas is Imperial Valley College's main Learning Management System. To log onto Canvas, use this link: Canvas Student Login. The Canvas Student Guides Site provides a variety of support available to students 24 hours per day. Additionally, a 24/7 Canvas Support Hotline is available for students to use: 877-893-9853.
- Learning Services. There are several learning labs on campus to assist students through the use of computers and tutors. Please consult your Campus Map for the Math Lab; Reading, Writing & Language Labs; and the Study Skills Center.
- Library Services. There is more to our library than just books. You have access to tutors in the Study Skills Center, study rooms for small groups, and online access to a wealth of resources.

Disabled Student Programs and Services (DSPS)

Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313. Please contact them if you feel you need to be evaluated for educational accommodations.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee.

- **Student Health Center**. A Student Health Nurse is available on campus. In addition, Pioneers Memorial Healthcare District provide basic health services for students, such as first aid and care for minor illnesses. Contact the IVC Student Health Center at 760-355-6128 in Room 1536 for more information.
- **Mental Health Counseling Services**. Short-term individual, couples, family and group counseling services are available for currently enrolled students. Services are provided in a confidential, supportive, and culturally sensitive environment. Please contact the IVC Mental Health Counseling Services at 760-355-6310 or in the building 1536 for appointments or more information..

Veteran's Center

The mission of the IVC Military and Veteran Success Center is to provide a holistic approach to serving military/veteran students on three key areas: 1) Academics, 2) Health and Wellness, and 3) Camaraderie; to serve as a central hub that connects military/veteran students, as well as their families, to campus and community resources. Their goal is to ensure a seamless transition from military to civilian life. The Center is located in Building 600 (Office 624), telephone 760-355-6141.

Extended Opportunity Program and Services (EOPS)

The Extended Opportunity Program and Services (EOPS) offers services such as priority registration, personal/academic counseling, tutoring, book vouchers, and community referrals to qualifying low-income students. EOPS is composed of a group of professionals ready to assist you with the resolution of both academic and personal issues. Our staff is set up to understand the problems of our culturally diverse population and strives to meet student needs that are as diverse as our student population.

Also under the umbrella of EOPS our CARE (Cooperative Agency Resources for Education) Program for single parents is specifically designed to provide support services and assist with the resolution of issues that are particular to this population. Students that are single parents receiving TANF/Cash Aid assistance may qualify for our CARE program, for additional information on CARE please contact Lourdes Mercado, 760-355- 6448, lourdes.mercado@imperial.edu.

EOPS provides additional support and services that may identify with one of the following experiences:

- Current and former foster youth students that were in the foster care system at any point in their lives
- Students experiencing homelessness
- Formerly incarcerated students

To apply for EOPS and for additional information on EOPS services, please contact Alexis Ayala, 760-355-5713, alexis.ayala@imperial.edu.

Student Equity Program

- The Student Equity Program strives to improve Imperial Valley College's success outcomes, particularly for students who have been historically underrepresented and underserved. The college identifies strategies to monitor and address equity issues, making efforts to mitigate any disproportionate impact on student success and achievement. Our institutional data provides insight surrounding student populations who historically, are not fully represented. Student Equity addresses disparities and/or disproportionate impact in student success across disaggregated student equity groups including gender, ethnicity, disability status, financial need, Veterans, foster youth, homelessness, and formerly incarcerated students. The Student Equity Program provides direct supportive services to empower students experiencing insecurities related to food, housing, transportation, textbooks, and shower access. We recognize that students who struggle meeting their basic needs are also at an academic and economic disadvantage, creating barriers to academic success and wellness. We strive to remove barriers that affect IVC students' access to education, degree and certificate completion, successful completion of developmental math and English courses, and the ability to transfer to a university. Contact: 760.355.5736 or 760.355.5733 Building 100.
- The Student Equity Program also houses IVC's Homeless Liaison, who provides direct services, campus, and community referrals to students experiencing homelessness as defined by the McKinney-Vento Act. Contact: 760.355.5736 Building 100.

Student Rights and Responsibilities

Students have the right to experience a positive learning environment and to due process of law. For more information regarding student rights and responsibilities, please refer to the IVC General Catalog.

Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. The IVC Library Department provides numerous Information Literacy Tutorials to assist students in this endeavor.

Anticipated Class Schedule/Calendar

This is a tentative schedule for the semester. Due to the nature of the laboratory and shop environments it may be necessary to adjust dates and assignments.

WEEK	DATE	MATERIAL COVERED	RESOURCES
1	February 13 & 15	Syllabus & Introduction	Handouts
2	February 20 & 22	General Shop Safety & Tools	Chapter 3, 4, 5
3	February 27 & 29	History, Basic System Operation	Chapter 1, 11, 12, 16
4	March 6 & 8	Review of Electrical Theory	Chapter 17, 18, 20, 21, 22
5	March 13 & 15	Review of Electronic Theory	Chapter 19, 23, 24, 25
6	March 20 & 22	Application of Electrical and Electronic Theory	Online Resources
7	March 27 & 29	Fuel and Induction System Analysis	Chapter 39, 40, 41, 42, 43, 44
8	April 3 & 5	SPRING RECESS - CAMPUS CLOSED	Online Resources
9	April 10 & 12	MIDTERM EVALUATION	In Class Assignments
10	April 17 & 19	Ignition System Analysis	Chapter 34, 35
11	April 24 & 26	Cooling System Analysis	Chapter 47, 48
12	May 1 & May 3	Lubrication System Analysis	Chapter 49, 50
13	May 8 & 10	Exhaust and Emission System Analysis	Chapter 45, 46, 51, 52
14	May 15 & 17	Engine Troubleshooting	Chapter 53, 54, 55
15	May 22 & 24	Engine Performance	Chapter 53, 54, 55
16	May 29 & 31	Advanced Engine Diagnosis and Repair	Online Resources
17	June 5 & 7	FINAL EVALUATION	In Class Assignments

*****Tentative, subject to change without prior notice*****