

**IMPERIAL VALLEY
COLLEGE
LEARNING FOR SUCCESS**

**AUTOMOTIVE
TECHNOLOGY**

AUT-110

ENGINE TECHNOLOGY

COURSE SYLLABUS

**INSTRUCTOR:
RICARDO PRADIS
SPRING 2014**

IMPERIAL VALLEY COLLEGE
Industrial Technology Division
Automotive Department

Course title:	AUT-110 Engine Technology
	CRN-20895
Instructor:	Ricardo Pradis
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Semester:	Spring 2014
Location:	Room 1100 lecture
	Room 1102 laboratory
Secretary:	(760) 355-6361
Coordinator:	Mr. Lopez
	(760) 355-6362

Class Meeting:

Monday 6:30 - 8:20 pm

Tuesday 6:30 – 9:40 pm

Wednesday 6:30 – 9:40 pm

All students are to report to class on time defined as class schedule. Any students who arrive 15 minutes after class start time will be marked absent. You are required to report to the instructor if you will be late or must leave early or you will be mark absent for that day.

Course Description:

For the student with little or no internal combustion engine background Design, construction, and mechanical function of internal combustion engines including lubricating, cooling, fuel, and electrical systems, and an understanding of the basic sciences relevant to such topics as internal combustion and energy conversion

Upon successful completion of this course, the student will be able to:

1. Formulate and apply safe working practices, in and out of the shop, including fire prevention.
2. Recognize and use the automotive tools and equipment that is basic to automotive operation and principles.
3. Take apart, analyze and reconstruct the automotive engine.
4. Compare and contrast the automotive engine and other engines.
5. Explain the electrical and fuel theory.
6. Apply the use of the basic tune-up equipment.

Student Learning Outcomes

1. Identify and interpret engine concerns; determined necessary action
2. Perform cylinder cranking and running compression test; determined necessary action.
3. Remove cylinder head; inspect gasket condition; install cylinder head and gasket; tighten according to manufacturer's specifications and procedures.
4. Disassemble engine block; clean and prepare components for inspection and reassembly.

Grading Criteria:

1. Attendance: First day of class, regular attendance, and withdrawal after exceeding the number of class hours per week.
2. Tardiness: Three times equals one absent.
3. Student Conduct: Upon entry into IVC constitutes the student's acceptance of the standards of student conduct and the regulations publish by the college.
4. Each student is responsible for making up schoolwork missed because of absences.
5. Grading system:
 - A=90%-100% of points= Excellent
 - B=80%-89% of points= Good
 - C*=70%-79% of points= Satisfactory
 - D= 60%-69% of points= Pass, less than satisfactory
 - F= Less than 60% of points= Failing

6. Very important:

- **Mid-Term** (60 points) will be given on March 10. It will be a multiple choice test **Bring your Scantron, and pencil.**
- **Final-Exam** (60 points) will be given on May 14. It will be a multiple choice test **Bring your Scantron and pencil.**
- There are no make-up exams unless you have a very good reason and make arrangements with the instructor before the exam.
- Final grades can be raised or lowered based on your preparation and participation in class. It benefits you to be engaged and participative.

Grades:

	Points
Book worksheets, quizzes.	140
Lab activity, hands-on worksheets.	240
Mid-term	60
Final-exam	60
Total points	500

Course Grade:

The course grade is based on total points accumulated during the semester. There is a total of 500 points available. Grades are determined by dividing the total points you earn by the total points available to get your percentage. (Total points may vary if I change the assignments in a particular week).

Grading of Hands-on Assignments:

The most common problem students experience is not being detailed enough in their answers and not spending the right amount of time in the repair procedures. Always be as specific as you can and use examples from your readings. Make sure to answer all parts of the questions. Points will be deducted for inadequate responses. Feedback will be given after each assignment and, hopefully, you will improve as you proceed with the course. The following grading rubric is used when grading assignments.

	Grading Rubric for Hands-on Assignment	Points
A	Focused and clearly organized. Contains critical thinking and content analysis. Convincing evidence is provided to support conclusions. Ideas are clearly communicated. Clearly meets or exceeds assignments requirements.	18-20
B	Generally focused and contain some development of ideas, may be simplistic or repetitive. Evidence is provided which supports conclusions. Meet assignments requirements.	16-17
	May be somewhat unfocused, underdeveloped, or rumbling.	

C	But does have some coherence. Some evidence is provided which support conclusions. Meets minimum assignment requirements.	14-15
D	Unfocused, underdeveloped. Minimal evidence is used to support conclusion. Does not respond appropriately to the assignment.	12-13
F	Minimal effort by the student. Unfocused, underdeveloped. Evidence is not used to support conclusion. Block overall understanding. Does not meet assignment requirements.	0-11

Method of Instruction:

Methods of instructions may include, but are not limited to, the following: lectures, textbook worksheets, hands-on worksheets, internet readings, large and small group discussions, audiovisual aids, and demonstrations.

Academic Honesty

- Plagiarism is to take and present 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 correctly ‘cite a source’, 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, or assisting others in using materials, which are prohibited or inappropriate in the context of the academic assignment in question. Anyone caught cheating 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 School 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

**Automotive Technology
Classroom & Shop Policy**

Classroom:

No Eating during lectures (coffee or drinks allowed). Respect your fellow student’s space and property. Be on time so as to not disturb others during lectures. If you miss a class you are responsible to make up all work. Bring required material to every class session.

Computers are to be used only for school related projects or assignments. No cell phones will be used during class, this include “**Texting**” all phones must be set to silent/vibrate and if you must take a call please leave the classroom quietly. No stereo’s or music allowed in the classroom or lab area. If you are having trouble with the course and/or personal problems, communicate with the instructor as soon as possible so as to get the help needed. Students have the right to experience a positive learning environment; 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. Swearing, negative remarks and discriminatory statements will not be tolerated. If someone says anything to you that makes you feel uncomfortable or that you feel is inappropriate contact your instructor immediately. Due to college rules and state laws, no one who is not enrolled in the class may attend, including children.

Special Needs:

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 760-355-6312 if you feel you need to be evaluated for educational accommodations. I have made every effort to ensure that this course is accessible to all students, including students with disabilities. If you encounter any problem during this course, please contact me immediately.

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 student 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 lose 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 Automotive Electronics course the following safety requirements must be strictly enforce:

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.

Equipment and Supplies:

1. Textbook & Workbook: Modern Automotive Technology 7th Edition James E. Duffy
2. Pen and pencils.
3. Standard writing paper.
4. Personal Protective Equipment:
 - Safety glasses,
 - Work footwear,
 - Proper shirt and pants

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 approve by the instructor. All approve projects must be removed from campus prior to finals.

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.

Course Instructional Schedule and Learning Activities:

Week 1: Class orientation, safety procedures, demonstrations, shop activities and safety test.

Week 2-3-4:

Chapter 1 & 11: The Automobile & Engine Fundamentals

Review questions pgs.20 & 160

Workbook chapter 11

Quiz chapter 11

Lab Activity: perform cylinder compression test, perform engine vacuum test, disassemble, clean, and inspect engine

Week 5-6:

Chapter 13: Engine Top End Construction

Review questions pgs. 197

Workbook chapter 13 – quiz chapter 13

Lab Activity: disassemble, inspect, repair and reassemble a cylinder head

Week 7-8:

Chapter 14: Engine Bottom End Construction

Review questions pgs. 215

Workbook chapter 14 – quiz chapter 14

Lab Activity: disassemble, inspect, repair and reassemble an engine block

Week 9: Mid-term

Week 10-11:

Chapter 49: Engine Removal, Disassembly, and Cleaning

Review questions pg. 946

Workbook chapter 49 – quiz chapter 49

Lab Activity: remove engine (front or rear wheel drive) prepare for disassembly and reinstall

Week 12:

Chapter 51: Engine Top End Service

Workbook chapter 51- quiz chapter 51

Lab Activity: identified the procedures involved in engine top end service

Week 13:

Chapter 50: Engine Bottom End Service

Workbook chapter 50 – quiz chapter 50

Lab Activity: identified the procedures involved in engine bottom end service

Week 14:

Chapter 42: Engine Lubrication

Workbook chapter 42 – quiz chapter 42

Lab activity: perform an engine lubrication system inspection

Week 15:

Chapter 39: Engine Cooling System

Worksheet chapter 39 – quiz chapter 39

Lab Activity: perform an engine cooling system inspection

Week 16:

Final-Exam

Instructor Office Hours:

Monday:	12:00 – 1:00 pm
Tuesday:	5:30 – 6:30 pm
Wednesday:	5:30 – 6:30 pm
Thursday:	2:30 – 3:30 pm
By Appointment:	Contact me at 355-6403 or ricardo.pradis@imperial.edu

In Case of Emergency:

If you have a life-threatening illness or injury that requires an ambulance, call 911 immediately. Emergency costs are not covered by Student Health Services.

Students have counseling and health services available, provided by the pre-paid Student Health Fee. We now also have a fulltime mental health counselor. For information see <http://www.imperial.edu/students/student-health-center/>. The IVC Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310

ASSIGNMENTS:**Reading and Writing:**

Find out about the Stanley Steamer or another steam-driven automobile. Describe to the class how its engine worked. Show a drawing or a photograph, if possible.

Out-of-class:

Visit an auto dealership and identify the different engine types offered as a standard across the range of automobile models under a single brand name (Ford, Honda, Chrysler, Chevrolet, etc). Write a report on your findings.