

## Basic Course Information

Semester:	<b>Spring 2023</b>	SPRING	<b>2023</b>
Course Title & #:	<b>AUT 120</b>	Email:	<b>Carlos.araiza@imperial.edu</b>
CRN #:	<b>20962</b>	Webpage (optional):	
Classroom:	<b>1201-1100</b>	Office #:	<b>3121</b>
Class Dates:	<b>13 Feb- 09 Jun2023</b>	Office Hours:	
Class Days:	<b>T-R</b>	Office Phone #:	<b>442-231-9622</b>
Class Times:	<b>6.00-10.20pm</b>	Emergency Contact:	
Units:	<b>4</b>	Class Format:	

## Course Description

*Review and advanced study of internal combustion engine operation and the use of the machine shop equipment and machines for rebuilding the diesel and gasoline engines. The differences between standard and performance applications will be highlighted.*

*Recommended Preparation .AUT 110 or two years of high school in auto mechanics.*

## Course Prerequisite(s) and/or Co-requisite(s)

*Recommended Preparation Auto 110 or Diesel 140 maintenance and repair.*

## Student Learning Outcomes

*Upon course completion ,the student will have acquired new skills and be able to.*

*1 Diagnose engine blocks ,cylinder heads and valve train components (ILO1, ILO2, ILO3)*

*2 Repair and replace engine assembly components (ILO1, ILO2,ILO3)*

*3 Assemble engines and their related parts.(ILO1, (ILO2 .ILO3)*

*4- Describe engine components that need to be repair using the machine equipment.*

## Course Objectives

*Student will be able to.*

*1 To prepare graduates for employment as automotive and diesel mechanics in the preparation and use of the machine shop equipment*

*2 Comply with all safety shop procedures associated with the use of the machine shop equipment .*

*3 to understanding the basic aspect of machining engine parts and components.*

*4 Use the proper steps and procedures to disassembly ,machine and assembly engine sections.*

*5-Recognize and demonstrate the use of tools and equipment used in the machine shop.*



IMPERIAL VALLEY COLLEGE

## Textbooks & Other Resources

Automotive Engine Rebuilding. Second Edition by James G Hughes ISBN 0-13-368374-5

Auto Machining SA Design Cart-Tech by Paul Johnson ISBN 978-1-61325-717-3.

Engine Math SA Design By John Baechtel ISBN 978-1-934709-47-4.

## Course Requirements and Instructional Methods

As provides or required, all students and faculty will bring, make use of at each class such (PPE) personal protective equipment as to provide personal protection for the work being performed. All students will secure use of as provided or required an OSHA/ANSI approved:

**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.

### Methods of instruction for learning:

- Lecture
- Institutional Technology Presentations
- Group and Individual Discussions
- Demonstration
- Outside Assignments

### Learning activities

- Individual and group learning activities
- Individual and group discussions
- Individual and group oral presentations
- Individual and group classroom/lab demonstrations
- Other, as the instructor may determine appropriate in and out of class learning assignments, use of computer technology, writing assignments and library research assignments

*ATTENDANCE; First day of class , regular attendance and withdrawal after exceeding the number of class hour per week.*

*TARDINESS; Three times equals one absence IVC catalog 09-10*

*ABSENCES ; 3 absences =to automatic drop of the class IVC catalog 09-10 pg 24*

## 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. Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.
- Students who stop attending class will be awarded an F letter grade and it is the students' responsibility to drop the course should they decide to stop attending.
- *ATTENDANCE; First day of class, regular attendance and withdrawal after exceeding the number of class hour per week.*
- *TARDINESS; Three times equals one absence IVC catalog 09-10*
- *ABSENCES ; 3 absences =to automatic drop of the class IVC catalog 09-10 pg 24*

## Grading

Grading will be based on the following Methods.

Chapter quizzes (8) =	400 points
Final Exam Written =	300 points
Final Lab exam =	300 points
Total points Possible	1000 points

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 satisfactory
F = Less than 60% of points =	Failing.

*Exams will consist of information from class lectures, reading assignments, homework, videos ,and lab activities.*

## Anticipated Class Schedule/Calendar

Date or Week	Activity, Assignment, and/or Topic	Pages
Demonstrated proper use and inspection of personal protection equipment.	Chapter 1, 2 and 3.	Pages 3-5 for the first week
Chapter 1	Chapter 1	Pages 6,7,8,9,12,13,14 Second week

<b>Date or Week</b>	<b>Activity, Assignment, and/or Topic</b>	<b>Pages</b>
Engine Components Cleaning.		
Chapter 2 Precision Measurement Tools	Chapter 2	Pages 15,18,29,22,23,24,27.28.31.
Chapter 3 Cylinder Block Disassembly and Inspection.	Chapter 3	Pages 32,38,39,40,
Cylinder Block Machining	Chapter 4	Pages 45-61
Crankshaft Measurement, Grinding and Preparation	Chapter 5	Pages 64-71
Connecting Rod Inspection and Reconditioning	Chapter 6	Pages 72-74
Pushrods and Lifters	Chapter 7	Pages 82-84
Pistons	Chapter 8	Pages 99-111
Cylinder Head Inspection, Service and Machine	Chapter 9	Pages 112-117
Camshaft	Chapter 10	
Port Machining	Chapter 11	Pages 120-127
Engine Balancing	Chapter 12	Pages 128-146
Clearance Checking	Chapter 13	Pages 149-157
Final Assembly	Chapter 14	Pages 159-176
Dyno Testing and Assembly		

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