IMPERIAL VALLEY COLLEGE

Basic Course Information

Semester:	**Winter 2024**	Instructor:	**Pat Barbee**
Course Title & #:	**AUT 120 Machine Shop**	Email:	**pat.barbee@imperial.edu**
CRN #:	**15251**	Webpage (optional):	
Classroom:	**1201-1100**	Office #:	**1104 A**
Class Dates:	**02 January-02 February**	Office Hours:	**Monday-Friday 2:00-3:00pm**
Class Days:	**M-F**	Office Phone #:	**760-355-6357**
Class Times:	**3:00-8:55pm**	Emergency Contact:	**Tisha Nelson: 760-355-6361**
Units:	4	Class Format:	**Face to Face**

Course Description

Review and advanced study of internal combustion engine and service procedures in the use of automotive machine shop tools and machines for rebuilding the engine. (CSU)

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

None.

Student Learning Outcomes

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

1. Describe engine size measurements based on bore, stroke, displacement, and number of cylinders.
2. Explain engine compression and how it affects engine performance.
3. Explain engine torque and horsepower ratings.
4. Explain volumetic efficiency, thermal efficiency, mechanical efficiency, and total engine efficiency.

Course Objectives

Student will be able to.

1. demonstrate knowledge of safety in the shop.
2. recognize and demonstrate the use of tools and equipment used in the automotive shop.
3. explain basic engine operation.
4. diagnose the need for engine tear down.
5. disassemble, analyze and reconstruct the automotive engine.

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Textbooks & Other Resources

How to Build Big-Inch GM LS-Series Engines ISBN:9781613251645
David Vizard's How to Port & Flow Test Cylinder Heads ISBN:9781934709641
Automotive Machining ISBN:9781613257173

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.

A- 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

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

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

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

Anticipated Class Schedule/Calendar

Date or Week	Activity, Assignment, and/or Topic	Pages
January 2	Syllabus & Introduction, Safety procedures review, Safety Test	
January 3	Chapter 2 Precision Measurement Tools	Page 15-31
January 4	Review of Chapter 2. Quiz	Page 15-31
January 5	Chapter 3 Cylinder Block Disassembly and Inspection	Page 32-40
January 8	Chapter 3 Parts Identification Homework on parts identification	
January 9	Chapter 3 Parts identification continued and Quiz	
January 10	Chapter 1 Engine Component Cleaning	Pages 6-14
January 11	Chapter 1 continued Homework Chapter 1	

January 12	Exam on Chapter 2	
January 15	**Holiday No Class**	
January 16	Chapter 4 Cylinder block machining Homework Chapter 4	Pages 45-61
January 17	Chapter 3 continued Homework Cylinder block machining	
January 18	Chapter 5 Crankshaft Measurement	Pages 64-71
January 19	Chapter 5 Continued Quiz Chapter 5	
January 22	Chapter 6 Connecting Rod Inspection & Reconditioning	
January 23	Chapter 6 continued Quiz Chapter 6	
January 23	Chapter 7 Push Rods and Lifters Quiz Chapter 7	Pages 82-84
January 24	Chapter 8 Pistons	Pages 89-96
January 25	Chapter 9 Cylinder Head Inspection	Pages 99-111
January 26	Chapter 11 Valvetrain GM LS-Series Book	Pages 110-119
January 29	Chapter 10 Camshafts LS Series Book Homework Chapter 10	Pages 98-109
January 30	Chapter 2 Stroking Options LS Series Book Homework Chapter 2	Pages 10-17
January 31	Chapter 13 Clearance Checking Automotive Machining Book	Pages 149-157
February 1	Chapter 13 Continued Quiz Chapter 13	
February 2	FINAL EXAM!!!!!	

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