

## Basic Course Information

Semester:	<b>SPRING 2023</b>	Instructor Name:	<b>Gilberto Figueroa</b>
Course Title & #:	<b>AUT 220 "Mechanical Automatic Transmissions"</b>	Email:	<b>gilberto.figueroa@imperial.edu</b>
CRN #:	<b>20433</b>	Webpage (optional):	
Classroom:	<b>1101</b>	Office #:	<b>n/a</b>
Class Dates:	<b>February 13 – June 9</b>	Office Hours:	<b>M &amp; W 12:45-1:15pm</b>
Class Days:	<b>Monday &amp; Wednesday</b>	Office Phone #:	<b>n/a</b>
Class Times:	<b>8:20am -12:45pm</b>	Emergency Contact:	<b>760-355-6361</b>
Units:	<b>4 Units</b>	Class Format:	<b>In person</b>

## Course Description

*Design, construction, mechanical and hydraulic function and repairs of the automatic transmission*

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

*None.*

## Student Learning Outcomes

- 1. Diagnose fluid loss and condition concerns; check fluid level in transmissions with and without dipstick; determine necessary action.*
- 2. Inspect and replace external seals, gaskets, and bushings.*
- 3. Disassemble, clean, and inspect transmission/transaxle.*
- 4. Assemble transmission/transaxle.*

## Course Objectives

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

- Identify the basic components of an automatic transmission.
- Describe the function and operation of the major parts of an automatic transmission.
- Compare the different types of automatic transmissions.
- Explain how an automatic transmission shifts gears using shift solenoids.
- Troubleshoot an automatic transmission.
- Change automatic transmission oil and filter.
- Locate and repair automatic transmission leaks.

## Textbooks & Other Resources or Links

*Modern Automotive Technology Book & Workbook, 10Th Edition*  
 Author: Van Gelder ISBN:978-1-64564-688-4





## 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, and hands-on shop experiences.

## Course Grading Based on Course Objectives

- A= 90%-100% Excellent
- B= 80%-89% Good
- C= 70%-79% Satisfactory
- D= 60%- 69% Pass, less than satisfactory
- F= 59% & Below Failing

The course grade will be determined by various factors such as class participation, classroom assignments, quizzes, & final exams. The grading range is as follows:

Activities	Points
Participation - Attendance	90
(3) Lab Activity - 30 pts each	90
(4) Quizzes – 30 pts each	120
Final Exam	200
Total Points	500

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

## 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.

**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 3 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 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.

**Ultimately, it is the student responsibility to drop from the course, in the event that they stop coming to class. If a student fails to come to class and fails to drop from the course they will be awarded a Letter grade on an F, for lack of participation in the course and required lab and lecture assignments.**

## 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.

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 therapy are provided to currently enrolled students. Contact the IVC Mental Health Counseling Services at 760-355-6196 in Room 2109 for more information.

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 6 2100, telephone 760-355-6313. Please contact them if you feel you need to be evaluated for educational accommodations.

## Anticipated Class Schedule/Calendar

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
Week 1	Class Introduction/Safety	Quiz
Week 2	Automatic Transmission Case and Components	Campus Closed (Feb 20)
Week 3	Automatic Transmission Fluids	
Week 4	Cooling Systems	
Week 5	Oil Pump Purpose and Types	Quiz
Week 6	Drums and their Function	
Week 7	Types of Pistons and Lip Seals	
Week 8	Washer Type and Thrust Bearings	
Week 9	NO CLASSES (Spring Recess)	Campus Closed (April 10-15)
Week 10	Principles of Hydraulics	Quiz
Week 11	Accumulator and Servos	
Week 12	Bands, Friction Plates, and Steel Plates	
Week 13	Sprag and Roller Clutches	
Week 14	Planetary Systems	Quiz
Week 15	Valve Body and Manual Valve	
Week 16	Torque Converters	Campus Closed (May 29)
Week 17	Final Exam	Final Exam

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