Imperial Valley College
Spring 2014

Mechanical Automatic Transmissions

AUT 220

Syllabus

Instructor: **Jose Lopez** Office: **1102**

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Class begins: **January 21, 2014** Ends: **May 16, 2014**

Time: **R 6:30-8:30 pm S 8:30-3:00pm** Building: **1100 Room**: **1103**

CRN 20811 Secretary: Francis Gomez (760) 355-6361

TEXTBOOK

Modern Automotive Technology Book & Workbook, 7th edition
Author: James E, Duffy 1SBN9781590709566

Coarse Description

Design construction, mechanical and hydraulic function and repair of the Automatic Transmission.

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. Diagnose fluid loss and condition concerns; check fluid level in transmissions with and without dipstick; determine necessary action. (IL01, IL02, IL03)
2. Inspect and replace external seals, gaskets, and bushings. (IL01, IL02, IL03)
3. Disassemble, clean, and inspect transmission/transaxle. (IL01, IL02, IL03)
4. Assemble transmission/transaxle. (IL01, IL02, IL03)

IVC as an institution has adopted five student learning outcomes (SLO'S). They are interconnected with each other. They will be inherent throughout this course:

1. Communication
2. Skills
3. Critical thinking Skills
4. Information Literacy
5. Global Awareness

Course Goals and Objectives:

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

1. To prepare graduates for employment as automotive mechanics, parts and supply house technicians, and service station mechanics and operators. The training program is intended to meet the entry level skill needs in the occupational field of Automotive Technology (mechanics).

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

A. Comply with all safety shop procedures associated with stands, air tools, hydraulic jacks, and car lifts.
B. Have a though understanding of the Automatic Transmission system and its components.
C. Describe the power flow systems of the Automatic Transmissions.
D. Describe the proper steps and procedures to disassembly and assembly Automatic Transmissions.

Students with disabilities

Any student with a documented disability who may need educational accommodations should notify his/her instructor or the Disabled Student Program and Services 9DSPS) office as soon as possible. The 9DSPS is located in building 2117, Health Services Building, or may contact them at (760) 355-6312. For first aid call the nurse at (760) 337-0300

Students Responsibilities and attendance

Each student is required to comply with the schedule established by IVC and automotive program. Students should attend class each a day class is in session. If for any reason a student is absent he/she is responsible for making up any missed work. It is recommended that students call the office to inform the instructor is he/she is ill or bring a doctor's release note. Four tardies = one absence, four absences and you will be dropped from the class or given an incomplete (IC) for the course. It is also recommended for each student to bring classroom and shop manual along with pencil and paper.

Basic Rules and Shop Safety

1. No music allowed in the auto shop.
2. No smoking in the shop area.
3. No work should be redone without the instructor's permission.
4. No parking inside the shop during lecture time.
5. No tolerance for sexual harassment.
6. No long breaks (10 minutes per class hour).
7. Every student is required to wear safety glasses.
8. No helpers or visitors during lab activities.
9. The student cannot leave early without the instructor's permission.
10. No cell phones during class section.
11. Each student should clean the work area.

Spring Class Schedule 2014

- Classes begin**: Jan 21, 2014**
- Late Registration: **Feb 01, 2014**
- Dead line to drop full-term classes: **Apr 11, 2014**
- **Holiday January 20 Martin Luther King, February 14-15 Lincoln's Birthday. No classes. February 17 Presidents Day. No classes.**

Very important:

- **Mid-term (60 points) will be given on March 14. It will be a multiple choice test Bring your Scranton, and pencil.**

- **Final-Exam (60 points) will be given on May 15. It will be a multiple choice test Bring your Scranton 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 engage and participative.

Class:	Points
Text/Book 5 Quizzes =	125
Transmission activity worksheets (3 sets of worksheets) =	300
Mid- term Exam =	65
Final Exam =	100
Total =	590

Assignments and activities consist of:

- Text book
- Reviews
- Videos
- Laboratory Activities
- Service Manuals
- Hands-on each section
- Other Materials

Out of- class:
Library computer software assignment. Read, review and answer the level l, Level ll, and Level lll ASE Questions. After completion students will print out a report to find out the level were he/she needs support.
Reading and writing:
Read, review, and answer Automotive Service Excellence (ASE) questions from ASE A-2 class booklet Motor age. When finished with assignment, instructor will review each stamen with live Transmission components. The assignment consists of: 1. General transmission/ transaxle Diagnosis-25 questions. 2. Transmissions/transaxle repair-13 questions.
There will be a mid-term and final exam. Each will be worth 25% of your grade. The mid-term will have 50 questions on ASE type,the final exam will have 100 ASE type questions. Quizzes will make up 25% of your grade. The last 25% of your grade will be on projects assigned as part of the lab section of class.

Percentage	Scores	Letter grade
25% Completed Assignments	100-90%	A
25% Quizzes	89-80%	B
25% Mid-term exams	79-70%	C
25% Final Exam	69-60%	D
	59-50%	F

Assignments and Exams:
Exams will consist of information from class lectures, reading assignments, books, videos, and lab activities. The instructor will be providing demonstrations and revising assignments.

Assignments due every
Note: Time can be flexible with lectures, Lab activities or exams.

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.

Academy Honesty

- Plagiarism is to take and present as one's own the writing or ideas of others, without source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing writing 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 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 use of a commercial term paper.

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 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 class may be sent out of the room and told to meet with 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 feels 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 this class may attend, including children.

Faculty and Staff

All students are required to take direction from 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:

Foe every task performs in Automotive Electronics course the following safety requirements must be strictly enforce:
Comply

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 order 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.

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 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.

Outline and Activities

Week:	INTRODUCTION AUTOMATIC TRANSMISSION	CLASS ACTIVITIES	QUIZ	HOMEWORK/EXAMS
1st Week	▪ Safety ▪ Orientation type of Automatic Transmissions ▪ Fluid coupling/Torque Converter ▪ Function of clutches/ Bonds in Automatics ▪ Power flows ▪ Three/four speeds ▪ Maintenance/Adjustments ▪ Service/Diagnostics	Videos 1,2,3 -Booklets -Tools for power-train -DYNO Operation -Transmission Activities		Safety test Textbook and workbook
2nd Week	**Chapter 1 The Automobile** Parts, assembly, and systems Hybrid vehicle	Open activity Workbook Identify the following parts, assemblies and systems Pages 9-14 Instructor Show students a part component, assembly, And system (out of vehicle)		Textbook Chapter 1 Review the main Components and systems of the Automotive. Pages 1-20
3rd Week Part 1	**Chapter 3** ▪ Basic hand tools ▪ Identify common Hand tools ▪ Safety rules for Hands tools ▪ Use hands tools safely	Open Activity Workbook Basic tools Chapter 3 Pages 19-22 Demonstration Basic tools for Transmission overhaul		Textbook Chapter 3 Review ASE questions on pages 46
Part 2	**Chapter 4** ▪ Power tools/ Equipment ▪ Types of tools/ Equipment ▪ Safety procedures For tools/equipment	Open activity workbook Power tools and Equipment pages 23-30 Demonstration Basic equipment	Quiz Basic tools	Textbook Chapter 4 Review ASE questions

4th Week	**Chapter 6** Automotive Measurement and math ▪ Measuring tools ▪ Other measurement And measuring tools ▪ Using basic mathematic	Open activity workbook Answer pages 31-34 Demonstration: ▪ Shop measurement ▪ Using ruler ▪ Using conversion charts ▪ Using a micrometer and caliper ▪ Using a dial indicator ▪ Using a temperature Unit ▪ Using a digital Multimeter		Textbook chapter 6 Review ASE questions Page 84

5th Week **6th Week Part 2**	**Chapter 57** Automatic Transmission fundamentals ▪ Basic Automatic Transmission ▪ Hydraulic system ▪ Parking pawl ▪ Automatic Transmission power flow ▪ Electronic Transmission Control ▪ Continuously variable transmission ▪ Complete Transmission assembly ▪ Highway History	Open Activity Workbook Answer pages 293-296 Demonstrations and worksheets ▪ Torque converter ▪ Planetary gear ▪ Drum/clutch assembly ▪ Band and Devices Assembly ▪ Pump assembly ▪ Valve body Assembly ▪ Electronic Unit		Textbook Chapter 57 Review ASE questions Page 1108-1109
7th Week **8th Week**	**Chapter 58** Automatic Transmission Service ▪ Automatic transmission Identification ▪ Automatic Transmission Diagnosis ▪ Automatic maintenance ▪ Major Transmission	Open Activity Workbook Answer pages 297-300 Demonstration and worksheets ▪ Transmission Diagnosis ▪ Preliminary checks ▪ Electrical connections ▪ Shop testing ▪ Road testing		Text Chapter 58 Review ASE questions Pages 1127-1128

	Service ▪ Automatic Transmission and Transaxle Diagnosis	▪ Pressure tests ▪ Air test ▪ Maintenance ▪ Adjustments ▪ Transmission removal		
9th Week	Review Chapters 57-58	Lab Activity Review		**Mid TERM-EXAM**
10th Week	Review Transmission worksheets 1 & 2.	Provide live demonstrations of different types of power-trains.		
11th Week **12th Week**	**Chapter 64** Transaxle and Front drive diagnosis and repair Diagnose common transaxle and drive axle problems. Remove and install a transaxle assembly. Replace CV-Joint on front drive axles. **Chapter 6** Automotive Measurement and math ▪ Measuring systems ▪ Measuring tools ▪ Other measurements ▪ Using basic mathematics ▪ Workplace skills	Open Activity Workbook Answer pages 327-330 Demonstration and worksheets Remove Drive shaft. Universal Joint Service. CV-Joint service Open Activity Workbook Answer pages 31-34 Demonstration and worksheets ▪ Shop ▪ Measurement ▪ Using conversion charts ▪ Using a micrometer and caliper ▪ Using a dial indicator ▪ Using a temperature ▪ Using a digital multimeter		Textbook Chapter 64 Review ASE questions pages 1234-1235 Textbook Chapter 6 Review ASE Questions page 84
13th Week	**Chapter 80** Career success ▪ Traits of desirable employees ▪ Earning types of shops ▪ Getting a job as an automobile technician	Open activity workbook Answer pages 401-402 Discussion Types of career		Textbook Chapter 80 Review ASE questions pages 15-1563
14th Week	**Chapter 2** Lecture-practical Exams	Demonstrations with: Questions examples live demonstrations		Preparation for ASE Exam
15th Week	**Preparation for final Exam and worksheets**			
16th Week	**Transmission worksheets Reviews Demonstrations**			