

IMPERIAL VALLEY COLLEGE

SPRING 2013

Manual Transmissions and Power Trains

AUTO 180

Instructor: Jose Luis Perez

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Class begins: January 14, 2013

Times: 6:30-9:40 Tues.

6:30-9:40 Thurs.

Office: 1102

Phone: 355-6361

Ends: May 10, 2013

TEXTBOOK

Modern Automotive Technology by James E. Duffy

COURSE DESCRIPTION

This course discusses modern manual transmissions, driveline, and differential theory. Methods of repair, service equipment operation, diagnosis, and service procedures for import and domestic vehicles will also be discussed. Upon successful completion of this course students are prepared to take the Automotive Service Excellence (ASE) certification examination in manual transmissions.

STUDENT LEARNING OUTCOMES

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 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. Identify the major components of the automobile clutch assembly
- C. Have basic understanding of how drive train systems work
- D. Learn different types of power train units
- E. Understand manual shift transaxles and overdrive
- F. Understand gear ratios and the planetary gear system
- G. Understand the purpose of the front and rear drive lines
- H. Study various import vehicle drive trains

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 (DSPS) office as soon as possible. The DSPS is located in building 2117, the health services building or you may contact at (760) 355-6312. For first aid call the nurse at (760) 337-0300.

STUDENT RESPONSIBILITIES

Each student is required to comply with the schedule established by IVC and the automotive program. Students should attend class each 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 if 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 a classroom and shop manual along with pencil and paper.

ASSIGNMENTS AND ACTIVITIES

Reviews, videos, laboratory activities, service manual, and hands-on learning for each section the course

GRADING SYSTEM

There will be a mid-term and a final exam. Each will be worth 25% of your grade. Quizzes will also make up 25% of your grade. The last 25% of your grade will be on projects assigned as part of the lab section of the class.

<u>Percentage</u>	<u>Scores</u>	<u>Letter Grade</u>
25% completed assignments	90-100%	A
25% Quizzes	80-89%	B
25% Mid-term	70-79%	C
25% Final Exam	60-69%	D
	59% and below	F

NOTE: Lecture on chapters will be subject to change

BASIC RULES AND SHOP SAFETY

- No music allowed in the shop
- No parking in front of the gate
- No work should be done without permission from the instructor
- No parking inside the shop during lecture time
- No long breaks (should be 10 minutes per class hour)
- Each should clean his/her work area
- Students cannot leave early without the instructor's permission
- No cell phones during class section

- No helpers or visitors during lab activities
- Safety glasses required during lab hour

OUTLINES AND ACTIVITIES

WEEK	INTRODUCTION MANUAL	ACTIVITIES/ QUIZ	HOMEWORK/ EXAMS
1	Orientation: Clutches Safety, manual trans. Transaxles Drivelines Differentials Four-wheel drive sys.	show safety video 1,2,3	video safety test
Part II	Chapter 5 The Auto Shop And Safety	study guide pgs. 27-30	review questions pgs. 68-69
2	Chapter 3 Basic Hand Tools	study guide pgs. 19-22	review questions pgs. 45-46
3	Chapter: 53	study guide	review questions

	Clutch Fundamentals	pgs. 277-280	pgs. 52-53
4	Chapter: 54 Clutch Diagnosis And Repair Diagnosing Clutch Problems Servicing a Clutch	study guide pgs. 281-284	review questions pg. 1044
5	Chapter: 55 Manual Transmission Fundamentals	study guide pgs. 285-288	review questions pgs. 1067-1068
6	Chapter: 56 Manual Transmission Diagnosis and Repair Manual transmission problems Transmission identification	study guide pgs. 289-292	review questions pg. 1079
7	Chapter: 9 Fasteners, Gaskets, Seals And Sealants	study guide pgs. 41-42	review questions pg. 125
8	Chapter : 59 Drive shafts and Transfer Cases Drive shaft assembly Drivelines	study guide pgs. 301-303	review questions pg. 1141

MID-TERM

9	Chapter: 60 Drive shaft and Transfer Case Diagnosis Service and repair Drive shaft problems Drive shaft inspection Drive shaft maintenance	study guide pgs. 305-306	review questions pg. 1153
10	Chapter: 51 Differential and Rear Drive Axle Fundamentals Basic rear drive axle assembly Differential construction Differential action	study guide pgs. 307-312	review questions pg. 1171
11&12	Chapter: 62 Differential and Reardrive Axle Diagnosis and Repair Differential and rear axle problems And diagnosis Differential maintenance Rear axle service	study guide pgs. 313-320	review questions pg. 1189
13	Chapter: 63 Transaxle and Front Drive	study guide pgs. 321-326	review questions pgs. 1214-1215

	<p>Fundamentals</p> <p>Transaxle</p> <p>Manual transaxle</p> <p>Front drive axle assembly</p>		
14	<p>Chapter: 64</p> <p>Transaxle and Front Drive</p> <p>Axle Diagnosis and Repair</p>	<p>study guide</p> <p>pgs. 327-330</p>	<p>review questions</p> <p>pgs. 1231-1234</p>
15	<p>Preparation for Automotive</p> <p>Service Excellence (ASE)</p> <p>Manual Transmission and</p> <p>Power Trains</p>		
16	<p>Review and Preparation</p> <p>For Final Exam</p>		

SPRING 2013 IMPORTANT DATES

- Jan. 14 Spring 2013 Term begins
- Jan. 21 MLK Day (campus closed)
- Feb. 8 Lincoln's Birthday (campus closed)
- Feb. 18 President's Day (campus closed)
- April 1-6 Spring Recess (campus closed)
- May 10 Spring 2012 Term ends

NON-DISCRIMINATION/SEXUAL HARASSMENT

All forms of harassment are contrary to basic standards of conduct between individuals are prohibited by state and federal law. As well as this policy and will not be tolerated. The district is committed to providing an academic and work environment that respects the dignity of individuals and groups. The district shall be free of sexual harassment and all forms of sexual intimidation and exploitation. Emergency number 911 for first aid, nurse (760) 337-0300.