

COURSE OUTLINE

Revised By: Doug Clapper & Howard Andersen

DATE: October 27, 2014

DEPARTMENT: Automotive Technology

CURRICULUM: Automotive Technology

COURSE TITLE: Manual Transaxles and Clutches

COURSE NUMBER: AUT 112

TYPE OF COURSE: Vocational Preparatory

COURSE LENGTH: Normally 2 weeks

CREDIT HOURS: 3

LECTURE HOURS: 10

LAB HOURS: 40

CLASS SIZE: 20 maximum

PREREQUISITES: MVM 100 (Introduction to Automotive Technology I),  
, MVM 102 (Introduction to Automotive Technology II),  
basic math skills, and 9<sup>th</sup> grade or higher reading level (as  
evidence by appropriate placement test scores), and/or  
instructor's permission.

COURSE DESCRIPTION:

Contents include: Power flow and principles involving manual transaxles; troubleshooting and diagnosing manual transaxles and clutches, removal of manual transaxle and clutch from vehicle; disassemble, clean, inspect, overhaul and reassemble of manual transaxle; reinstall manual transaxle and clutch in vehicle. In addition the function and construction of each component, as well as their diagnosis and service procedures will be covered. Instruction in safety, environmental awareness, human relations and leadership are taught as an integral part of this unit.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Critical Thinking - Use problem solving skills to diagnose and repair manual transaxle and clutch problems. (SLO 4.1)

2. Technology – Proper use and care of manual transaxle and clutch repair tools and equipment. (SLO 5.1)

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**PROGRAM OUTCOMES:**

1. Inspect, diagnose, disassemble, repair, replace and service each of the major systems in various types of vehicles. (SLO 4.1)
2. Locate sources, make parts write-ups, calculate costs and explain repair or service. (SLO 2.1, 2.2 & 7.1)
3. Handle customer needs, complaints, questions and special challenges. (SLO 3.1 & 3.2)
4. Access and apply manufacturer’s specifications in repair and replacement. (SLO 7.1)
5. Work safely and responsibly within all shop safety and environmental guidelines and standards. (SLO 6.4 & 6.5)
6. Rebuild and troubleshoot transmissions. (SLO 4.1 & 5.1)
7. Demonstrate ability to pass the ASE test required for NATEF certification. (SLO 1.1, 1.2 & 7.1)
8. Communicate and document service records. (SLO 2.1)
9. Compute costs, time and measurements. (SLO 2.1, 2.2 & 7.1)
10. Work independently and in groups to service, repair, test and maintain vehicles. (SLO 3.1 & 6.3)
11. Use technology to test vehicles. (SLO 5.1)
12. Work with accuracy, dependability, proficiency and in a timely manner, when servicing equipment. (SLO 6.3 & 6.4)

**GENERAL COURSE OBJECTIVES:**

At the end of the course the student will:

1. Explain and demonstrate safety as it applies to the automotive industry.
2. Demonstrate how to use both measuring and special manual transaxle tools.
3. Define and explain the power flow of a manual transaxle
4. Demonstrate how to diagnose and troubleshoot problems with manual transaxles
5. Demonstrate how to diagnose, remove and replace a clutch assembly
6. Demonstrate how to disassemble, rebuild and reassemble a manual transaxle
7. Demonstrate how to remove and install manual transaxles
8. Demonstrate proficiency in NATEF competencies

**TOPICAL OUTLINE:**

**APPROX. HOURS**

I. Safety practices	5	
II. Trace power flow and Explain the principles transaxles	5	of manual
III. Troubleshoot and diagnose manual transaxles		5
IV. Remove manual transaxles	5	

V.	Diagnose, remove and replace a clutch assembly		10
VI.	Overhaul manual transaxles	15	
VII.	Install and road test manual transaxles	<u>5</u>	
	Total		50

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