MASTER COURSE OUTLINE
Prepared By: Michael O'Konek   Date: September 2003

COURSE TITLE
MANUAL DRIVE TRAIN AND AXLES

GENERAL COURSE INFORMATION

Dept.: AUT	Course Num: 131	(Formerly:)
CIP Code: 47.0604	Intent Code: 21	Program Code: 712
Credits: 8		
Total Contact Hrs Per Qtr.: 121		
Lecture Hrs: 55	Lab Hrs: 66	Other Hrs:
Distribution Designation:		

COURSE DESCRIPTION (as it will appear in the catalog)
This course covers the theory, operation, diagnosis and repair of automotive clutch systems, manual transmissions, manual transaxles, front and rear drive axle operation, various drive shaft configurations and the procedures necessary to perform power train troubleshooting and repair. This course is designed to prepare the student for the ASE/NATEF Manual Drive Train & Axles Certification test.

PREREQUISITES
AUT 115 Automotive Shop Safety and Environmental Issues

TEXTBOOK GUIDELINES
An automotive text as chosen by Automotive Faculty (Example: _Manual Drive Trains and Axles_, 3rd Edition, Tom Birch, Prentice Hall Publications)

COURSE LEARNING OUTCOMES
Upon successful completion of the course, students should be able to demonstrate the following knowledge or skills:
 1. Perform diagnosis, service and repair on various types of automotive clutch systems.
 2. Use and interpret automotive service manuals.
 3. Perform diagnosis, service and repair on various types of automotive manual transmissions.
 4. Perform diagnosis, service and repair on various types of automotive transaxles.
 5. Perform diagnosis, service and repair on various types of automotive drive axles.
 6. Perform diagnosis, service and repair on various types of automotive transfer cases.
 7. Perform diagnosis, service and repair on various types of automotive universal joint and constant velocity joint configurations.
 8. Perform diagnosis, service and repair on various types of automotive front wheel and four wheel drive systems.
 9. Pass the Automotive Service Excellence (ASE) Test for Manual Drive Train & Axles Specialist..

INSTITUTIONAL OUTCOMES
IO3   **Human Relations/Workplace Skills**: Students will be able to demonstrate teamwork, ethics, appropriate safety awareness and/or workplace specific skills

COURSE CONTENT OUTLINE
Unit 1: *General Power Train Introduction*
Introduction

Unit 2: *Clutch Service and Repair*
Clutch Theory
Clutch Service

Unit 3: *Manual Transmission/Transaxle Service and Repair*
Transmission Theory
Transaxle Theory
Transaxle/Transmission service

Unit 4: *Drive Shaft & Universal Joint Service and Repair*
Driveshaft and Universal Joint Theory
Driveshaft and Universal Joint Service

Unit 5: *Drive Axle Service and Repair*
Drive Axle Theory
Drive Axle Service

Unit 6: *Four Wheel Drive Service and Repair*
Four Wheel Drive Theory
Four Wheel Drive Service

DEPARTMENTAL GUIDELINES *(optional)*
EVALUATION METHODS/GRADING PROCEDURES:
- Daily work assignments: 30% of the final grade.
- Test and quiz scores: 30% of the final grade.
- Laboratory performance: 40% of the final grade.

In the Laboratory, the student is required to complete daily time sheets explaining what was accomplished during each lab period. Points will be earned for each day's performance. While in the laboratory, the student is also required to maintain a Laboratory Task List. The task list must be signed off by the instructor as the student completes each task.

No points are earned if absent. All late work will have 10% deducted. Ten (10) or more absences will result in failure of the class.

Points will be lost for:
- Tardiness
- Poor quality work
- Poor work habits
- Improper use of tools
- Unsafe work habits
- Improper care of tools

Grades will be calculated using the following numerical scale:

95-100	=	4.0	82	=	2.8	70	=	1.6
93-94	=	3.9	81	=	2.7	69	=	1.5

92	=	3.8	80	=	2.6	68	=	1.4
91	=	3.7	79	=	2.5	67	=	1.3
90	=	3.6	78	=	2.4	66	=	1.2
89	=	3.5	77	=	2.3	65	=	1.1
88	=	3.4	76	=	2.2	64	=	1.0
87	=	3.3	75	=	2.1	63	=	0.9
86	=	3.2	74	=	2.0	62	=	0.8
85	=	3.1	73	=	1.9	61	=	0.7
84	=	3.0	72	=	1.8	60	=	0.7
83	=	2.9	71	=	1.7	0-59	=	0.0

_____   _____

DIVISION CHAIR APPROVAL   **DATE**