EASTERN ARIZONA COLLEGE
Automotive Service Techniques

Course Design

2016-2017

Course Information

Division	Industrial Technology Education
Course Number	AUT 180
Title	Automotive Service Techniques
Credits	2
Developed by	Brian Coppola
Lecture/Lab Ratio	1 Lecture/3 Lab

Transfer Status

ASU	NAU	UA
Non Transferable	CTE Departmental Elective	Non Transferable

Activity Course	No
CIP Code	47.0604
Assessment Mode	Pre/Post Test (20 Questions/100 Points)
Semester Taught	Upon Request
GE Category	None
Separate Lab	No
Awareness Course	No
Intensive Writing Course	No

Prerequisites

None

Educational Value

This course is designed to reinforce and apply information, processes, and ideas gained in other courses. The major intent of this course is to enhance the individual's abilities to work with and diagnose the automotive vehicle.

Description

Course provides individualized self-paced instruction in service and repair of automotive engines, electrical, transmissions, brakes, suspension, and A/C. Course includes an opportunity for the individual to service and repair vehicle systems and components using computer-based reference material. In this course’s modular lab assignments, emphasis is placed on each student's ability to demonstrate practical application of learned skills. This course prepares students for all eight ASE certification tests.

Supplies

Safety glasses

Competencies and Performance Standards

1. Apply proper safety procedures and processes.

Learning objectives

What you will learn as you master the competency:

a. Acquaint self with shop environment and hazards.

b. Acquaint self with emergency procedures and policy.

c. Accept responsibility for personal well-being and practice and follow safety guidelines.

d. Acquaint self with material safety data sheets and chemical used in shop.

Performance Standards

You will demonstrate your competence:

o through completing safety assignments and written exam at a satisfactory level

Your performance will be successful when:

o learner observes safety procedures and processes

2. Demonstrate an ability to perform automotive vehicle service and repairs efficiently and according to manufacture requirements.

Learning objectives

What you will learn as you master the competency:

a. Perform service and repairs on automotive engines, power train, chassis system, heating A/C system and electrical system.

b. Perform diagnosis on computer-controlled vehicle system.

c. Access and utilize professional repair information while performing repairs.

d. Assume responsibility for his or her work skills and traits.

Performance Standards

You will demonstrate your competence:

o in completing NATEF aligned assignments and job sheets listed in the related learning plan (the assignment and job sheets must be completed at a satisfactory level to the instructor)

o through performing the priority NATEF tasks listed in the related learning plan (the tasks must be completed with limited supervision - entry level)

Your performance will be successful when:

o learner is productive, works safely, and in a professional manner while working on NATEF task requirements listed in related learning plan

o learner provides acceptable oral and/or written responses to questions and/or situations asked by the instructor, while working on the NATEF task requirements listed in related learning plan

o learner actively participates in the NATEF task requirements listed in the related learning plan

o learner attends required class and lab sessions and shows up on time

3. Demonstrate the ability to properly organize, write, and handle shop paperwork activities.

Learning objectives

What you will learn as you master the competency:

a. Prepare and handle shop repairs as accepted by industry standards.

b. Use flat rate manuals efficiently.

c. Document student repair job efficiency and shop productivity.

d. Analyze his or her vehicle service / repair job efficiency.

Performance Standards

You will demonstrate your competence:

- in completing NATEF aligned assignments and job sheets listed in the related learning plan (the assignment and job sheets must be completed at a satisfactory level to the instructor)
- through performing the priority NATEF tasks listed in the related learning plan (the tasks must be completed with limited supervision - entry level)

Your performance will be successful when:

- learner is productive, works safely, and in a professional manner while working on NATEF task requirements listed in related learning plan
- learner provides acceptable oral and/or written responses to questions and/or situations asked by the instructor, while working on the NATEF task requirements listed in related learning plan
- learner actively participates in the NATEF task requirements listed in the related learning plan
- learner attends required class and lab sessions and shows up on time

4. Demonstrate acceptable work characteristics in terms of consistent work results, initiative, work safety, dependability, and communication skills.

Learning objectives

What you will learn as you master the competency:

a. Recognize the importance of good work traits relevant to dependability, consistence, safety, and showing respect.

b. Identify common strategies to develop personal work skills and traits.

Performance Standards

You will demonstrate your competence:

- in completing NATEF aligned assignments and job sheets listed in the related learning plan (the assignment and job sheets must be completed at a satisfactory level to the instructor)
- through performing the priority NATEF tasks listed in the related learning plan (the tasks must be completed with limited supervision - entry level)

Your performance will be successful when:

- learner is productive, works safely, and in a professional manner while working on NATEF task requirements listed in related learning plan
- learner provides acceptable oral and/or written responses to questions and/or situations asked by the instructor, while working on the NATEF task requirements listed in related learning plan
- learner actively participates in the NATEF task requirements listed in the related learning plan
- learner attends required class and lab sessions and shows up on time

Types of Instruction

Classroom Presentation
Lab
Individualized/Independent Study
Simulated or Actual Work Experience

Grading Information

Grading Rationale

A1-A9 Lab Modules	= 70% of total grade
Module Tests and final	= 10% of total grade
Tests all have equal weight	
Articles / reading assignments	= 20% of total grade

Grading Scale

A	90% - 100%
B	80% - 89%
C	70% - 79%
D	60% - 69%
F	Below 60 %

Learning Plan

Safety

Overview

In this learning plan you will develop the knowledge needed to work safely in a shop environment. You will learn safety procedures, the location of safety equipment, and the safety features of various shop equipment. The instruction will cover general shop safety processes, fire safety, battery safety, lifting procedures, and health-related hazards.

1. Apply proper safety procedures and processes.

Learning Activities

_____1. Complete a worksheet/assignment sheet.

_____2. Collect a current article that relates to concepts and issues about which you are studying.

_____3. Listen and observe a lecture covering safety procedures and practices - review a safety and hazards video.

_____4. Operate hoist, floor jack (jack stands) and any equipment needed during assigned lab activities.

_____5. Identify location of safety equipment, first-aid kit, phone, fire blanket, fir extinguishers, exits, light switches, and vents.

Assessment Activities

_____1. Participate in safety discussion.

_____2. Complete activities in lesson.

_____3. Complete written safety test.

Learning Plan

Service Repairs

Overview

Service and Repair various vehicle systems

2. Demonstrate an ability to perform automotive vehicle service and repairs efficiently and according to manufacture requirements.

Learning Activities

Complete modules provided by instructor in areas listed below

_____1. Service the vehicle's engine timing belt. (P1 NATEF IB 15)

_____2. Perform PM service/maintenance to vehicle's engine. (P1 NATEF ID 13)

_____3. Check A/C and heating systems. (P1 NATEF VII A 2)

_____4. Service vehicle FWD axle assembly. (P1 NATEF III C 4)

_____5. Check the vehicle alignment. (P1 NATEF IV C 4,5,6)

_____6. Service the vehicle automatic transmission. (P1 NATEF II B 2)

_____7. Identify and check the vehicle charging system. (P1 NATEF VI D 2)

_____8. Identify cause of vehicle hard code fault. (P1 NATEF VIII B 1,2,3)

_____9. Access and utilize various repair information resources.

Assessment Activities

_____1. Complete all assigned task / timing belt module, reference module, CV boot replacement module, alignment module, engine 60,000 maintenance module, brake module, A/C module, engine performance module, and electrical module. Includes locating reference material and reviewing procedure.

_____2. Read Mitchell's ASE study guide covering Engine Repair, Electrical, Manual transmissions, Automatic Transmissions, Engine Performance, Heating & A/C, Steering and Suspension, Brakes, and take Mitchell's ASE practice test for each area listed. Student may repeat each ASE area test (there are 8 of them) twice and the highest score will be recorded as a test grade.

_____3. Read an article from a professional service magazine and critique an article related to each area listed.

Learning Plan

Shop Service Paper Work

Overview

To provide ability to properly handle shop paper work.

3. Demonstrate the ability to properly organize, write and handle shop paperwork activities.

Learning Activities

_____1. Maintain complete and accurate shop work orders and customer repair orders using a paper process.

_____2. Maintain complete and accurate shop work orders and customer repair orders using an electronic computer-based system.

_____3. Calculate individual efficiency when repairing vehicle's engine timing belt.

_____4. Calculate individual efficiency when servicing vehicle's engine.

_____5. Calculate individual efficiency when checking A/C and heating systems.

_____6. Calculate individual efficiency when servicing vehicle braking system.

_____7. Calculate individual efficiency when servicing vehicle FWD axle assembly.

_____8. Calculate individual efficiency when checking the vehicle alignment.

_____9. Calculate individual efficiency when servicing the vehicle automatic transmission.

_____10. Calculate individual efficiency identifying and checking the vehicle charging system.

_____11. Calculate individual efficiency when identifying hard code/fault concern.

Assessment Activities

_____1. Complete accurate paper work and turn-in one module per 10 shop days.

_____2. Complete assigned reading, articles and take quiz (one test per week).

_____3. Calculate personal efficiency on assigned modules every four weeks.

Learning Plan

Work & Employee Traits

Overview

Identify personal work traits and ability to be successful at the automotive service facility.

4. Demonstrate acceptable work characteristics in terms of consistence work results, initiative, work safety, dependability and communication skills.

Learning Activities

_____1. Complete self-evaluation/self-interview related to work skills and traits.

_____2. Attend class on time and during scheduled meeting times and calculate personal shop / class productivity.

_____3. Summarize various strategies for improving work traits and skills.

Assessment Activities

_____1. Complete all assigned tasks