

EASTERN ARIZONA COLLEGE

Advanced Shop

Course Design

2016-2017

Course Information

Division Industrial Technology Education
Course Number AUT 280
Title Advanced Shop
Credits 4
Developed by Brian Coppola
Lecture/Lab Ratio 2 Lecture/6 Lab

Transfer Status

ASU	NAU	UA
Non Transferable	CTE Departmental Elective	Non Transferable

Activity Course No

CIP Code 47.0604

Assessment Mode Portfolio

Semester Taught Spring

GE Category None

Separate Lab No

Awareness Course No

Intensive Writing Course No

Prerequisites

AUT 180 or AUT 101 and AUT 105 or instructor approval

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 diagnosis the automotive vehicle.

Description

Course provides students with an opportunity to perform advanced automotive service work in preparation for entry into the automotive trade. Course includes an option for students to develop skills at an automotive worksite. This course addresses all service and repair on any vehicle system and provides the student exposure to shop management operations and strategies. This course is intended for the automotive major only and prepares the student to take all eight ASE automotive certification exams.

Supplies

Safety glasses

Student notebook/folder

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 chemicals used in shop.

Performance Standards

Competence will be demonstrated:

- o by completing safety assignments and written exam at a satisfactory level

Criteria - Performance will be satisfactory when:

- o learner observes and practices safety procedures

2. Demonstrate the ability to perform automotive vehicle service and repairs at 80% efficiency and 100% productivity.

Learning objectives

- a. Perform service and repairs on various vehicle engines, power trains, chassis systems, electrical, heating and A/C systems and electrical systems, and learn to take responsibility for results.
- b. Perform diagnosis on computer controlled vehicle systems, and learn to take responsibility for results.

Competence will be demonstrated:

- o when learner completes NATEF aligned assignment 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 when learner performs the priority NATEF tasks listed in the related learning plan (The tasks must be completed with limited supervision - entry level)

Criteria - Performance will be satisfactory 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 paper work 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.

Performance Standards

Competence will be demonstrated:

- when learner completes NATEF aligned assignment and job sheets listed in the related learning plan (The assignment and job sheets must be completed at a satisfactory level to the instructor)
- when the learner performs the priority NATEF tasks listed in the related learning plan (The tasks must be completed with limited supervision - entry level)

Criteria - Performance will be satisfactory when:

- learner is productive, works safely, and in a professional manner while working on 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, cleanliness, 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, consistency, safety and showing respect.
- b. Identify common strategies when dealing with customer concerns.

Performance Standards

Competence will be demonstrated:

- when learner completes NATEF aligned assignment and job sheets listed in the related learning plan (The assignment and job sheets must be completed at a satisfactory level to the instructor)
- when the learner performs the priority NATEF tasks listed in the related learning plan (The tasks must be completed with limited supervision - entry level)

Criteria - Performance will be satisfactory when:

- learner is productive, works safely, and in a professional manner while working on 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

5. Develop career market plan to achieve stated career goals.

Learning objectives

What you will learn as you master the competency:

- a. To prepare job application, references, and one-year/five-year goal plan.
- b. To identify good employee traits.
- c. To perform self assessment of work traits.

Performance Standards

You will demonstrate your competence:

- when learner completes NATEF aligned assignment and job sheets listed in the related learning plan (The assignment and job sheets must be completed at a satisfactory level to the instructor)

the instructor)

- o learner performs 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 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

Types of Instruction

Classroom Presentation

Lab

Individualized/Independent Study

Simulated or Actual Work Experience

On-the-job Experience

Grading Information

Grading Rationale

Class Assignments 30%

Laboratory / Intern (Productivity / Efficiency Score) 70%

Productivity Formula = $\frac{\text{Student's Clocked Time on Jobs}}{\text{Lab Time required (6 hrs per week)}}$ divided by

Efficiency Formula = $\frac{\text{Flat rate hours sold}}{\text{Student's clocked hours on vehicle}}$ divided by

Flat Rate Hours on Vehicles

Lab grade will be calculated as shown below -

$\frac{\text{Productivity} + \text{Efficiency}}{2} = \text{P/E Score}$

2

Grading Scale

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

Pass/Fail A non-major student may choose to have a grade of P or F rather than a letter grade. A grade of P will require that the student receive a percentage grade of at least 70%. A grade less than this will result in a grade of F.

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. Operated 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, fire 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 Efficiency and Productivity

Overview

The service and repair activities listed in the learning activities can be completed at an automotive work site. The Training Assistance Program has been established and qualified students must apply and be accepted by the work site mentor and the instructor of this course. The work site mentor should track and sign-off each activity as it is completed.

2. Demonstrate the ability to perform automotive vehicle service and repairs at 80% efficiency and 90% productivity.

Learning Activities

- ____ 1. Service the vehicle's valve train assembly and test for proper operation. (P1 NATEF I B 15)
- ____ 2. Perform PM service/maintenance on vehicle's engine. (P1 NATEF I D 13, VIII C 7 & 5, VIII D 6 & 11 & 13, VIII E 2,)
- ____ 3. Evacuate and recharge A/C and heating systems. (P1 NATEFVII A 1, B 2-3, E 6)
- ____ 4. Service vehicle-braking system. (P1 NATEF V B 2,4,5, 6, 7 & V C 3,4,5,6, 7,8,10,11)
- ____ 5. Identify cause for anti-lock brake system concern. (P1 NATEF V F 1, 3)
- ____ 6. Perform repair to restore anti-lock system to proper operation.
- ____ 7. Disassemble, reassemble, and set up differential ring and pinion gears. (P2 NATEF III D 4,5,6,7,8)
- ____ 8. Perform vehicle pre-alignment inspection. (P1 NATEF IV C 2)
- ____ 9. Perform 4-wheel alignment. (P1 NATEF IV 4,5,6, 10, 11)
- ____ 10. Identify cause of electronic shift transmission operation concern. (P1 NATEF II C 7)
- ____ 11. Perform repair to restore proper operation of electronic shift transmission.
- ____ 12. Identify and check the vehicle charging system-Perform repair component failure on vehicle charging system. (P1 NATEF VI D 2)
- ____ 13. Perform repair component failure on vehicle charging system.

Assessment Activities

- _____ 1. Participate in discussion of subject matter. Listen and participate in class lecture dealing with analyzing shop production. Complete weekly article critique and present to class.

- _____ 2. Complete all required activities. Look repair time and maintain paper and electronic repair orders. Maintain individual productivity and efficiency records - due every 4 ½ weeks.

- _____ 3. Complete article critique & present weekly, complete student progress sheets, complete RO's for each job completed.

Learning Plan

Shop Organization

Overview

The service and repair activities listed in the learning activities can be completed at an automotive work site. The Training Assistance Program has been established and qualified students must apply and be accepted by the work site mentor and the instructor of this course. The work site mentor should track and sign-off each activity as it is completed.

3. Demonstrate the ability to properly organize, write and handle shop paper work 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 and productivity when performing the vehicle service and repairs outlined in the Service Efficiency and Productivity Learning Plan.
- _____ 4. Participate in activities and discussion related to vehicle repairs, service and customer relations.
- _____ 5. Prepare article critique and present information to the class once per week.

Assessment Activities

- _____ 1. Participate in discussion of subject matter. Listen and participate in class discussions dealing with articles presented and shop production & shop management, customer relation skills.
- _____ 2. Complete all required activities. Keep individual shop RO's and tracking sheets up-to date and accurate.
- _____ 3. Complete accurate shop records and turn in every 4 ½ weeks, calculate shop cash flow, identify employee tool & equipment needs and complete customer relation module by Honda / Acura .

Learning Plan

Desirable Work Habits

Overview

The service and repair activities listed in the learning activities can be completed at an automotive work site. The Training Assistance Program has been established and qualified students must apply and be accepted by the work site mentor and the instructor of this course. The work site mentor should track and sign-off each activity as it is completed.

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

Learning Activities

- ____ 1. Attend class on time and during scheduled meeting times (punctual and dependable).
- ____ 2. Complete all written work neatly and turn in on time.
- ____ 3. Identify good employee work traits.
- ____ 4. Perform self-assessment of automotive related mechanical skills and work traits.
- ____ 5. Summarize various strategies for handling customer and vehicle concerns.
- ____ 6. Demonstrate professional work habits on every vehicle service and repair job.

Assessment Activities

- ____ 1. Participate in discussion of subject matter. Participate in self assessment & employee trait discussion

Learning Plan

Career Preparation

Overview

The service and repair activities listed in the learning activities can be completed at an automotive work site. The Training Assistance Program has been established and qualified students must apply and be accepted by the work site mentor and the instructor of this course. The work site mentor should track and sign-off each activity as it is completed.

5. Develop career market plan to achieve stated career goals.

Learning Activities

- ____ 1. Develop a personal résumé.
- ____ 2. Complete job application and self-evaluation/self-interview sheet.
- ____ 3. Identify 4 personal references.
- ____ 4. Develop an acceptable résumé.
- ____ 5. Develop a one-year career goal plan.
- ____ 6. Develop a five-year career goal plan.
- ____ 7. Develop a tooling and equipment list necessary for employment.
- ____ 8. Identify funding source to purchase tools and equipment needed.

Assessment Activities

- ____ 1. Participate in discussion of subject matter.
- ____ 2. Complete all required activities. Complete accurate and acceptable résumé, job application. List potential sources of employment, Identify sources of continual training beyond the classroom. Establish a one and five year career goal plan. Identify individuals who can help with goal achievements and establish a plan of action towards achieving goals.