

Assessment Report Automotive Technology

Part I-Assessment SUMMARY (AY04-05)

A. Program/Discipline Mission Statement:

It is the mission of the Automotive Technology Program at Arapahoe Community College to provide a learning centered environment that provides the automotive student the opportunity to gain the necessary skills and competences to obtain employment in the automotive repair industry, and to encourage professional work ethics.

B. Intended Learning Outcomes

At the end of each Fall and Spring semester, each student will:

1. Demonstrate proficiency in the area which they are studying. The following areas will be assessed:
 - a. Engine Repair
 - b. Automatic Trans/Transaxle
 - c. Manual Drive Train and Axles
 - d. Suspension and Steering
 - e. Brakes
 - f. Electrical/Electronic Systems
 - g. Heating and Air Conditioning
 - h. Engine Performance
2. Demonstrate selected essential hands on skills learned during each of the areas listed above.

C. Benchmarks

The preliminary benchmarks set for AY04-05 were:

1. 90% of the students will score on the ASE test in the 67th percentile or higher.
2. 90% of the students will score on the practical hands on test 70% or higher.

D. Assessment Results

1. Historical Context:

The new Assessment Procedure for AY05 differs from that in the most recent academic years in that it will assess students during and at the end of each semester completed. The new assessment plan is intended to more accurately determine if the student is learning both the theoretical classroom material as well as the hands on skills which will be needed to obtain entry level employment as an automotive repair technician. Additionally, it should be noted that the ASE tests taken by the students at the end of the semester are only given for the courses taken by the student in the semester just ended. This is a departure from the past Intended Learning Outcomes which assessed only completers of the program and gave the completers all eight tests at one time, many of those tests were given several semesters after the student took the related course work.

2. Current Year Data Results (results from Fall 04 & Spring 05):

Results of ASE tests given at end of each semester (Fall 04 & Spring 05):

<u>Fall 04:</u>	<u>Percentage of Students Passing:</u>
ASE A1 – Engine Mechanical:	84%
ASE A2 – Automatic Transmission:	31%
ASE A3 – Manual Transmission:	31%
ASE A4 – Steering & Suspension:	75%
ASE A5 – Braking Systems:	95%
ASE A6 – Electrical/Electronics	95%
ASE A7 – Automotive HVAC	80%
ASE A8 – Engine Performance	95%

<u>Spring 05:</u>	<u>Percentage of Students Passing:</u>
ASE A1 – Engine Mechanical	95 %
ASE A2 – Automatic Transmission:	25%
ASE A3 – Manual Transmission:	64%
ASE A4 – Steering & Suspension:	47%
ASE A5 – Braking Systems:	89%
ASE A6 – Electrical/Electronics:	90%
ASE A7 – Automotive HVAC:	100%
ASE A8 – Engine Performance:	88%

Percentage Change in Each Area: Fall 04 vs. Spring 05:

ASE A1: +11%	ASE A5: -6%
ASE A2: -6%	ASE A6: -5%
ASE A3: +33%	ASE A7: +20%
ASE A4: -28%	ASE A8: -7%

Overall Program Wide Average Number of Students Passing:

Fall 04:	75%
Spring 05:	81%

Results of Hands-On Testing:

Insufficient testing results were compiled during the Fall 04 and Spring 05 semesters – testing was not done in all classes, in both semesters.

Additionally, the testing that was done underwent changes between the Fall and Spring semesters and the results from the two semesters do not directly correlate.

3. Analysis

- a. The ASE test results reported back to our department during Fall 04 and Spring 05 did not include national percentile rankings as they had in previous years. Without these rankings, direct comparison between our students and the national averages, which was intended by our previously stated benchmarks, is not possible. Internal analysis and comparison is still possible, but with only two semesters of data, definite conclusions would be difficult to draw. However, some tentative conclusions can be made:
 1. Overall program curriculum and delivery are good / excellent as 75-81% of students passed the written tests meeting our benchmark.
 2. Curriculum and delivery in five (5) of eight (8) areas are good / excellent with 84% or more of students in each class passing in both semesters with data, meeting our benchmark.
- b. Hands-On testing did take place in several classes, but not in all classes, or not in both semesters. In addition, the testing that did take place underwent some working changes and rubric changes and development so no direct analysis is possible at this time.

E. Use of Results

1. Curriculum and/or delivery in Automatic Transmissions, Manual Transmissions, and Steering & Suspension need to be looked at closely in the present and future semesters to identify and correct their (apparent) short comings.
2. With some of the ASE areas (3) showing an increase in passing rates, while the rest of the areas (5) showing a decrease in passing rates with no explicit changes having been made in either the curriculum or delivery, more semesters of data and deeper evaluation of the available data will be necessary before any further conclusions can be made

Part II – Assessment PLAN (AY05-06)

A. Intended Learning Outcomes

At the end of each Fall and Spring semester, each student will:

1. Demonstrate proficiency in the area which they are studying. The following areas will be assessed:
 - a. Engine Repair
 - b. Automatic Trans/Transaxle
 - c. Manual Drive Train and Axles
 - d. Suspension and Steering
 - e. Brakes
 - f. Electrical/Electronic Systems
 - g. Heating and Air Conditioning
 - h. Engine Performance
2. Demonstrate selected essential hands on skills learned during each of the areas listed above.

B. Identify Assessment Procedures/Methods

At the end of each Fall and Spring semester, each student will:

1. Take an Industry Standardized test to determine the competency of the student in the specific areas taught during that semester. These specific instructional areas are broken down by their relationship to the National Institute for Automotive Service Excellence (ASE) certifications. Each certification is given its own separate exam. The ASE areas are:
 - a. Engine Repair
 - b. Automatic Trans/Transaxle
 - c. Manual Drive Train and Axles
 - d. Suspension and Steering
 - e. Brakes
 - f. Electrical/Electronic Systems
 - g. Heating and Air Conditioning
 - h. Engine Performance

These exams are graded by ASE and the students' scores are ranked versus all automotive students in the nation.

2. Demonstrate selected essential hands on skills learned during each of the courses taken during the semester. These skill areas fall within the same ASE skill areas listed above, and these individual tests will be given at the end of each course. The tests are timed and are performed on an actual live vehicle. These tests will be graded by a rubric.

C. Benchmarks

The preliminary benchmarks are:

1. 85% of all the students will earn a passing score on the Pass/Fail written ASE test.
2. 85% of all the students will earn a passing score on the Pass/Fail practical hands on test.

D. HAVE YOU SUBMITTED A SEPARATE BUDGET WORKSHEET?

YES
 NO