

COURSE OUTLINE

Painting and Refinishing: Spray Gun Operations I

Course Description

AB 236. Painting and Refinishing: Spray Gun Operations I. 3 hours credit.

Prerequisites: AB 101 and AB 126 with a C or better. This course will enable the student to select the correct paint to be applied to the repaired area of the auto body. The student will learn types of paint and the operations of a variety of spray guns used the auto body industry. The student will learn basic operations of spray booth systems, while using safety practices.

Course Relevance

The principles learned in this course will allow the student to perform the essential tasks of analyzing, preparing, and painting and refinishing of a damaged vehicle. These tasks are essential to those aspiring to work in the auto body repair profession. This course and subsequent courses will be taught according to NATEF (National Automotive Technicians Education Foundation)/ASE (Automotive Service Excellence) standards.

Required Materials

Duffey, J., (2004). *Auto body repair technology* (4th ed.). Albany, NY: Delmar Publishing

Learning Outcomes

The intention is for the student to be able to

1. Operate and maintain safely a spray gun and spray booth
2. Demonstrate proper paint atomization, paint viscosity, and paint temperature
3. Complete a spray pattern test in preparation for painting a vehicle
4. Apply personal and environmental safety practices
5. Proper use of safety equipment

Primary Learning PACT Skills that will be DEVELOPED and/or documented in this course

Through the student's involvement in this course, he/she will develop his/her ability in the following primary PACT skill areas:

1. Problem Solving
 - Through the analysis of the damage paint repair processes, the student will be able to identify the strengths and/or limitations of each individual process and make decisions based on that knowledge
2. Field-Related Technology
 - Through "in shop" exercises, the student will be able to demonstrate their understanding of analyzing, preparing, and refinishing outer body panels

Secondary skills (developed but not documented):

Health Management
Reading

Major Summative Assessment Task(s)

These learning outcomes and the primary Learning PACT skills will be demonstrated by:

1. Completing a designated project in which the student analyzes, prepares, and performs body panel repairs, replacements, and adjustments for refinishing

Course Content

- I. Themes - Key recurring concepts that run throughout this course:
 - A. Safety
 - B. Quality
- II. Issues - Key areas of conflict that must be understood in order to achieve the intended outcome:
 - A. Compliance with O.S.H.A Regulations
 - B. Compliance with safety procedures
- III. Concepts – Key concepts that must be understood to address the issues:
 - A. Proper planning techniques for refinishing
 - B. Proper preparation of material and equipment and selection
 - C. Proper performance and achievement of industry and acceptable standard for refinishing
- IV. Skills/Competencies - Actions that are essential to achieve the course outcomes:
 - A. Inspect, clean, and determine condition of spray guns and related equipment (air hoses, regulators, air lines, air source, and spray environment) High Priority-1 (HP-1)
 - B. Check and adjust spray gun operation for high volume, low pressure (HVLP) or low volume, low pressure (LVLP) guns (HP-1)
 - C. Set-up (fluid needle, nozzle, and cap), adjust, and test spray gun using fluid, air, and pattern control valves (HP-1)

Learning Units

- I. Determine different types of spray equipment.
 - A. Gravity feed spray gun (HVLP)
 - B. Suction cup spray gun
 - C. Proper clean up of spray equipment
 - D. Proper spray gun set-up
- II. Determine the different types of paints and primers
 - A. Single stage
 - B. Base coat/clear coat
 - C. Understanding differences in epoxy primers, primer surfacers, and other undercoatings
- III. Understanding different types of spray booth systems
 - A. Regular flow booth
 - B. Reverse flow booth

- C. Cross-draft booth
- D. Down-draft booth
- E. Spray booth maintenance
- F. Understanding spray booth safety issues

Learning Activities

Learning activities will include lectures, demonstration, and performance. Classroom lecture is designed to enable the student to understand the key principles of non-structural analysis and damage repair.

Grade Determination:

The student will be graded on completion of assessment tasks (learning activities), and written examination.