

## **COURSE OUTLINE** **Auto Electrical Systems II**

### **Course Description:**

AT105 Auto Electrical Systems II. 2 hours credit. Prerequisite: AT 102. This course will enable the student to learn the starting and charging systems that are presented in depth. The study will study motor principals, alternating current generation, rectifications, component and systems testing. The student will perform testing on and off the vehicle.

### **Course Relevance:**

The principles learned in this course will allow the student to be familiar with the career of auto collision repair. This course will help the student to assess if this is a career field he or she desires to pursue.

### **Required Materials:**

Duffey, J., (2001). *I-CAR, Professional Automotive Collision Repair (2<sup>nd</sup> ed)*.  
Albany, NY: Delmar Publishing.

### **Learning Outcomes:**

The intention is for the student to be able to:

1. Apply personal and environmental safety practices
2. Identify, maintain, and use proper tools, equipment, and chemicals
3. Select correct adjustments for equipment

### **Learning PACT**

**Through the student involvement in this course, the student will develop and document his/her achievement of the following PACT skills:**

Primary skills (developed and documented):

1. Critical Thinking
  - Through written and other “in class” assignments, the student will develop critical thinking skills
2. Problem Solving
  - Through exercises that demonstrate the understanding of steps and procedures, the student will be able to develop problem solving skills.
3. Field-Related Training
  - Through “In class” exercises, the student will be able to demonstrate their understanding of proper use of collision repair equipment

Secondary skills (developed but not documented):

Health Management  
Reading

**Assessment Tasks:**

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

1. Performing auto collision repair on “hands-on” projects
2. Recognizing and using the correct techniques and equipment to perform collision repair
3. Identifying and correcting problems by using accepted collision repair principles

**Course Content:**

- I. Themes - Key recurring concepts that run throughout this course:  
Safety and quality.
- II. Issues - Key issues that will be addressed in this course: areas of conflict that must be understood in order to achieve the intended outcome:
  - A. Planning an auto repair
  - B. Preparing surface for welding and/or repair
  - C. Straightening material
- III. Concepts – Key concepts that must be understood to address the issues:
  - A. Proper planning techniques of repair
  - B. Proper preparation of material and equipment
  - C. Proper performance of repair functions
- IV. Skills / Competencies - Actions that are essential to achieve the course outcomes:
  - A. Identify safe use and maintenance of general hand tools
  - B. Demonstrate safe use and maintenance of auto body hand tools
  - C. Identify the proper use of fire protection equipment
  - D. Use chemicals safely
  - E. Identify environmental effects of chemicals
  - F. Identify proper chemical disposal techniques
  - G. Identify information on and importance of MSD sheets

**Learning Units:**

- I. Body/paint shop work and safety procedures
- II. Understanding automotive construction
- III. Body shop hand tools
- IV. Body Shop power tools
- V. Automotive refinishing materials
- VI. Welding equipment and its use
- VII. Basic auto sheet metal work
- VIII. Minor auto body repairs

**Learning Activities:**

Learning activities will be geared towards lecture, demonstration, and performance. Classroom lecture is designed to enable the students to understand the key principles in auto body repair.

**Grade Determination:**

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