

## Master Syllabus

### AUT 1114 - Automotive Electrical/Electronic Systems I

**Division:** Science, Mathematics and Engineering

**Department:** Automotive Technology

**Credit Hour Total:** 3.0

**Lecture Hrs:** 1.4 **Lab Hrs:** 4.8

**Date Revised:** June 2014

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#### Course Description:

Comprehension of Ohm's law, basic electrical circuits, digital meter usage, batteries, starting and charging system operation. Diagnosis of wire harness repair procedures and service. One classroom, six lab hours per week.

#### General Education Outcomes:

- Critical Thinking/Problem Solving
- Information Literacy

#### Course Outcomes:

##### Automotive electrical schematics

Assess automotive electrical schematics both electronically and manually, utilizing printed repair manual information, to comprehend vehicle circuits and predict circuit electrical values.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% of students will score 70% correct responses on a written exam

**Assessment Method:** Performance appraisals

**Performance Criteria:** Score 3 of 4 on a rubric

**Assessment Method:** Simulations

**Performance Criteria:** Score 3 of 4 on a rubric

##### Ohm's Law and basic electrical circuits

Diagnose electrical circuits using Ohm's law.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% of students will provide 70% correct responses on a written exam

##### Digital multimeter usage

Diagnose electrical circuits utilizing a digital multimeter.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% of students will score 70% correct on a written exam

**Assessment Method:** Performance appraisals

**Performance Criteria:** Students will score 3 of 4 points on a rubric

**Assessment Method:** Simulations

**Performance Criteria:** Students will score 3 of 4 points on a rubric

##### Battery, starting and charging systems

Understand and test basic battery, starting and charging systems utilizing a digital multimeter and available test equipment.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% of students will score 70% correct on written exam

**Assessment Method:** Performance appraisals

**Performance Criteria:** Students will score 3 of 4 on a rubric

#### Outline:

Definition of electricity  
Units of electricity  
Ohm's law  
Understanding circuits  
Series circuits  
Parallel circuits  
Automotive circuit schematics  
Digital meter usage  
Wire and wire harness repair  
Magnetism  
Magnetic field interaction  
Electro magnetic induction  
Relay & Solenoids  
Electrical circuit components  
Battery construction and testing  
Starter construction and testing  
Charging system construction and testing