

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

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 Competency
- Information Literacy Competency

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