

## Master Syllabus

### AUT 2214 - Automotive Electrical/Electronic Systems II

**Division:** Science, Mathematics and Engineering

**Department:** Automotive Technology

**Credit Hour Total:** 4.0

**Lecture Hrs:** 2.0 **Lab Hrs:** 6.0

**Prerequisite(s):** AUT 1114

**Date Revised:** October 2013

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#### Course Description:

Advanced electrical/electronic system diagnosis and troubleshooting of starting and charging systems, lighting systems, dashboard instrumentation, body control and accessory circuits. SRS system operation, testing and diagnosis. AC and DC motor theory, operation and diagnosis. Schematic utilization. Diagnose serial data bus communication and module systems. Two classroom, six lab hours per week.

#### General Education Outcomes:

- ▣ Critical Thinking/Problem Solving Competency
- ▣ Information Literacy Competency

#### Course Outcomes:

##### Lighting and Accessory Circuits

Understand and diagnose automotive lighting and accessory circuits utilizing manufacturer circuit schematics and digital volt ohm meters.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 0% of the students will pass with 70% correct on a written exam

**Assessment Method:** Performance appraisals

**Performance Criteria:** Evaluation rubric score of 3 of 4 on a rubric

**Assessment Method:** Simulations

**Performance Criteria:** Evaluation rubric score of 3 of 4 on a rubric

##### Schematic Utilization

Utilize electrical schematics to troubleshoot circuits for problems.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% of the students will pass with 70% correct on a written exam

**Assessment Method:** Performance appraisals

**Performance Criteria:** Evaluation rubric score of 3 of 4

**Assessment Method:** Simulations

**Performance Criteria:** Evaluation rubric score of 3 of 4

##### Automotive SRS System

Understand and diagnose automotive primary and secondary supplemental restraint systems.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% of the students will pass with 70% correct on a written exam

**Assessment Method:** Performance appraisals

**Performance Criteria:** Evaluation rubric score of 3 of 4

##### Automotive Body Communication Systems

Understand and diagnose computer controlled automotive body communication systems and networks utilizing scan tools.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% of the students will pass with 70% correct on a written exam

**Assessment Method:** Performance appraisals

**Performance Criteria:** Evaluation rubric score of 3 of 4

**Assessment Method:** Simulations

**Performance Criteria:** Evaluation rubric score of 3 of 4

##### Electrical Circuit Troubleshooting

Diagnose a wide variety of prepared/"bugged" vehicles in the shop. Determine necessary action for repair or correction.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% of the students will pass with 70% correct on a written exam

**Assessment Method:** Performance appraisals

**Performance Criteria:** Evaluation rubric score of 3 of 4

#### Outline:

Strategy based diagnosis of automotive electrical/electronic systems

Advanced multimeter utilization  
Diagnosis of electrical faults (Shorts, opens & grounds)  
Semi-conductor function and applications  
Electric motor diagnosis  
Troubleshooting on-car electrical accessory systems  
Vehicle safety systems and SRS deployment  
Schematic utilization in troubleshooting electrical circuits  
Body module communication/data system operation  
Overview of hybrid vehicle operations