

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

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