

## Master Syllabus

### AUT 1115 - Automotive Engine Performance I

**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:** June 2014

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#### Course Description:

Operation and service of fuel injection systems. Testing and evaluation of emission controls, on-board diagnostic systems and engine condition. Basic hand tools required. Two classroom, six lab hours per week.

#### General Education Outcomes:

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

#### Course Outcomes:

##### Fuel system integrity and engine mechanical condition

Test, evaluate, and determine fuel system condition and engine mechanical condition utilizing established tools, equipment and methods.

**Assessment Method:** Behavioral observations

**Performance Criteria:** Students must earn a minimum score of 75% on assigned laboratory activities.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Students must earn a minimum score of 75% on assigned laboratory activities.

##### Fuel injection systems; input and output systems

Identify, describe, and explain the theory of operation for gasoline fuel injection systems, input and output circuits.

**Assessment Method:** Behavioral observations

**Performance Criteria:** Students will perform work in a laboratory setting and achieve a minimum 75% score on lab sheets.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Students must earn an average score of 70% on quizzes and exams.

**Assessment Method:** Performance appraisals

**Performance Criteria:** Students must earn a minimum score of 70% in a hands-on timed exam.

##### Tailpipe emissions

Utilize 5-gas emission testing equipment to test and analyze tailpipe emissions.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Students must earn an average score of 70% on quizzes and exams.

**Assessment Method:** Performance appraisals

**Performance Criteria:** Students must earn a minimum score of 70% in a hands-on timed exam.

##### Emission control devices and systems

Test all emission control devices, including EGR, PCV, AIR, 3-way catalyst, cam phasers, and evaporative systems.

**Assessment Method:** Behavioral observations

**Performance Criteria:** Students must earn a minimum score of 75% on assigned laboratory activities.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Students must earn an average score of 70% on quizzes and exams.

##### Computer scan tools

Demonstrate the ability to utilize all engine performance applications of common computer scan tools.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Students must earn an average score of 70% on quizzes and exams.

**Assessment Method:** Performance appraisals

**Performance Criteria:** Students must demonstrate competency in a hands-on exam with a score of 70% or higher.

#### Outline:

Fuel system and engine mechanical integrity Gasoline and alternative fuels Emission control systems Computer scan diagnostics Fuel injection theory of operation Sensor and output circuits Computerized fuel injection service