

## Master Syllabus

### HVA 1401 - HVAC Mechanical & Electrical Troubleshooting

**Division:** Science, Mathematics and Engineering

**Department:** HVAC-R Engineering Technology

**Credit Hour Total:** 3.0

**Lecture Hrs:** 2.0 **Lab Hrs:** 3.0

**Prerequisite(s):** HVA 1201 AND HVA 1221 AND EET 1120

**Date Revised:** January 2015

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#### Course Description:

Diagnostic methods of mechanical, electrical and control system problems in heating and cooling systems. Other topics include common faults and how to avoid repair failures. Two lecture, three lab hours per week.

#### General Education Outcomes:

- Critical Thinking/Problem Solving Competency
- Information Literacy Competency

#### Course Outcomes:

##### Component replacement procedures

Employ accepted component replacement procedures.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% or more correct responses

##### Avoiding repeat failures

Describe methods for avoiding repeat failures in equipment.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% or more correct responses

##### Safety controls

Describe the function and purpose of safety controls.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% or more correct responses

##### Component failure rates

Identify component failure rates.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% or more correct responses

##### Common mechanical and electrical problems

Identify common mechanical problems in light commercial heating and cooling equipment.

**Assessment Method:** Simulations

**Performance Criteria:**

Troubleshoot problems presented on the simulator with at least 80% accuracy

##### Proper troubleshooting techniques

Demonstrate proper troubleshooting techniques on equipment and systems.

**Assessment Method:** Behavioral observations

**Performance Criteria:**

Troubleshoot problems presented in equipment with at least 80% accuracy

#### Outline:

Common problems and their frequency  
Solutions to common problems  
Prevention of common problems  
Data gathering before failures occur  
Proper diagnostic methods  
Systematic procedures for solving common problems  
Monitoring equipment to aid in diagnostic methods  
Proper repair procedures recommended by the HVAC industry