

## Master Syllabus

### HVA 1241 - HVAC Installation Techniques & Practices

**Division:** Science, Mathematics and Engineering

**Department:** HVAC-R Engineering Technology

**Credit Hour Total:** 4.0

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

**Prerequisite(s):** HVA 1201

**Date Revised:** June 2014

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#### Course Description:

Basic practices required for new installation and replacement of HVAC equipment including an introduction to sheet metal skills, and copper and black pipe plumbing. Hands-on skills and code requirements will be stressed along with good safety practices. Includes installation of a complete residential HVACR system. Note: this course is scheduled to coincide with work on homes for Habitat for Humanity and requires 4-6 Saturday build days off-campus in the local metropolitan area. Two classroom, six lab hours per week.

#### General Education Outcomes:

- Oral Communication
- Critical Thinking/Problem Solving
- Values/Citizenship/Community

#### Course Outcomes:

##### Safe use of sheetmetal and hand tools

Describe and demonstrate the safe use of sheetmetal and hand tools.

**Assessment Method:** Behavioral observations

**Performance Criteria:** Score 7 points of 10 points on checklist

##### Black pipe and soldering copper

Demonstrate safe and proper techniques for measuring, cutting and threading black pipe and soldering copper.

**Assessment Method:** Behavioral observations

**Performance Criteria:** Score 7 points of 10 points on checklists

##### System installation

Install a functioning residential HVACR system.

**Assessment Method:** Behavioral observations

**Performance Criteria:** Score 7 points of 10 points on checklists

##### Sheetmetal layout procedures

Perform simple sheetmetal layout procedures.

**Assessment Method:** Behavioral observations

**Performance Criteria:** Score 7 points of 10 points on checklists

##### Common sheetmetal shop tools

Describe and demonstrate the safe use of common sheetmetal shop tools.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% or higher correct responses

##### OSHA construction safety

Complete requirements for OSHA 10- hour construction safety card.

**Assessment Method:** Standardized national examinations

**Performance Criteria:** 70% or higher correct responses

##### Code requirements and resources

Locate and state applicable code requirements and list resources required for a proper installation.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% or higher correct responses

#### Outline:

Occupational Safety & Health Administration (OSHA) 10-hour certification course  
Significance and importance of a quality installation  
General shop safety and the proper use of shop tools  
Simple sheetmetal layout procedures and practices  
Proper and safe handling and installation of piping and tubing  
Proper and safe methods for connecting electrical power and control wiring  
Related mechanical and building codes  
System installation