

Master Syllabus

HVA 1201 - Basic HVAC Systems with Cooling

Division: Science, Mathematics and Engineering

Department: HVAC-R Engineering Technology

Credit Hour Total: 3.0

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

Prerequisite(s): MAT 0100

Date Revised: September 2018

Course Description:

Basic concepts and theory of heating, ventilating, air conditioning and refrigeration systems. Foundations in the applications of cooling principles in light commercial equipment. Major components include refrigerant flow through equipment, applications of equipment to the refrigeration cycle, heat transfer fundamentals and preparation for the Environmental Protection Agency (EPA) refrigerant handler's certification exam. Two classroom, two lab hours per week.

General Education Outcomes:

- Critical Thinking/Problem Solving Competency

Course Outcomes:

Refrigeration cycle

Explain the basic refrigeration cycle and properly install gauges to take basic system readings.

Assessment Method: Behavioral observations

Performance Criteria:

Achieve "8" out of 10 points on procedure checklist

Physical properties

Define, measure and interpret basic properties associated with HVAC work.

Assessment Method: Locally developed exams

Performance Criteria:

70% or higher correct responses

Air distribution

Describe the use of air systems to meet heating and cooling requirements.

Assessment Method: Locally developed exams

Performance Criteria:

70% or higher correct responses

Heating systems

Describe the basic principles of operation and required equipment for electric, gas and oil heating systems.

Assessment Method: Locally developed exams

Performance Criteria:

70% or higher correct responses

Air conditioning

Explain how refrigeration is applied to air conditioning.

Assessment Method: Locally developed exams

Performance Criteria:

70% or higher correct responses

System components and accessories

Explain the purpose and operation of the major components of a refrigeration system.

Assessment Method: Locally developed exams

Performance Criteria:

70% or higher correct responses

Outline:

Heat transfer, matter and energy, air distribution, refrigeration cycle and refrigerant, function of major components and accessories within the system, refrigeration applied to air conditioning, low pressure refrigeration, safety considerations for the technician, environmental protection, preparation for the EPA Refrigerant Handler's Certification Exam