

## Master Syllabus

### HVA 1351 - Building Psychrometrics & Load Calculations

**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):** MET 1131 AND HVA 1201 AND MAT 0200

**Date Revised:** January 2015

---

#### Course Description:

Theory and practice of performing psychrometric analysis of HVAC systems. Principles and practice performing detailed heating and cooling load calculations for commercial facilities. Students learn both hand calculation and use of computer-based design and analysis tools. Selected hands-on laboratory studies reinforce basic principles. Two classroom, two lab hours per week.

#### General Education Outcomes:

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

#### Course Outcomes:

##### Psychrometric analysis

Perform psychrometric analysis of HVAC systems.

**Assessment Method:** Locally developed exams  
**Performance Criteria:**

70% or more correct on exams

##### Equipment selection

Select HVAC equipment to meet required criteria.

**Assessment Method:** Locally developed exams  
**Performance Criteria:**

70% or more correct on all exams

##### Heating load calculations

Calculate heating load for a facility using both hand and computer calculation techniques.

**Assessment Method:** Locally developed exams  
**Performance Criteria:**

70% or more correct on exams

**Assessment Method:** Simulations  
**Performance Criteria:**

70% or more of available points on computer load calculations

##### Cooling load calculations

Calculate cooling load for a facility using both hand and computer calculation techniques.

**Assessment Method:** Locally developed exams  
**Performance Criteria:**

70% or more correct on all exams

**Assessment Method:** Simulations  
**Performance Criteria:**

70% or more of available points on computer load calculations

#### Outline:

Psychrometric fundamentals and processes

Psychrometric analysis

Basic heat transfer

Heating and cooling load calculations

Evaporative cooling systems

Dedicated outdoor air systems

Equipment sizing and selection

## Refrigeration load calculations