

## Master Syllabus

### HVA 2780 - HVACR Engineering Technology Capstone Project

**Division:** Science, Mathematics and Engineering

**Department:** HVAC-R Engineering Technology

**Credit Hour Total:** 3.0

**Lecture Hrs:** 1.0 **Lab Hrs:** 6.0

**Prerequisite(s):** HVA 2201 AND HVA 2301

**Date Revised:** January 2015

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#### Course Description:

Assessment of achievement by HVACR Engineering Technology students in attaining program outcomes by completing a project demonstrating principles and practices of the major. Teamwork on projects will be emphasized. One classroom, six lab hours per week.

#### General Education Outcomes:

- Critical Thinking/Problem Solving Competency

#### Course Outcomes:

##### Control implementation

Develop all programming, control graphics, and a proper operator interface suitable for proper implementation of developed control strategy.

**Assessment Method:** Performance appraisals  
**Performance Criteria:**

Instructor and advisory member assessment of 'satisfactory' on capstone rubric.

##### Develop schematic drawings of existing model systems

Prepare a simplified schematic of an existing system illustrating general operation and equipment placement.

**Assessment Method:** Portfolios  
**Performance Criteria:**

Instructor and advisory member assessment of 'satisfactory' on capstone rubric.

##### Ensure system compliance with applicable codes, guidelines, and standards

Review applicable codes and ASHRAE documents to ensure compliance with best practices.

**Assessment Method:** Portfolios  
**Performance Criteria:**

Instructor and advisory member assessment of 'satisfactory' on capstone rubric.

##### Perform a system startup and Testing, Adjusting, and Balancing (TAB) procedure

Check all equipment for proper installation and wiring. Clean, fill and treat water system. Start and operate all equipment.

**Assessment Method:** Performance appraisals  
**Performance Criteria:**

Instructor assessment of 'satisfactory' on capstone rubric.

##### System documentation

Generate a portfolio of equipment operation documents, TAB documents, calculations, communication documents and any other documents acquired or generated so as to show the system was properly commissioned.

**Assessment Method:** Portfolios  
**Performance Criteria:**

Instructor and advisory member assessment of 'satisfactory' on capstone rubric.

##### Control strategy

Develop the control strategies for all control loops.

**Assessment Method:** Portfolios  
**Performance Criteria:**

Instructor and advisory member assessment of 'satisfactory' on capstone rubric.

#### Outline:

System Familiarization

Equipment Validation

System Startup

T.A.B. Procedures & Documentation

