MASTER SYLLABUS

COURSE NUMBER – COURSE NAME
HVAC106 – Residential & Light Commercial Installation

Created by: Stan Skowronek

Updated by:

Canino School of Engineering Technology

Department: Mechanical & Energy Systems

Semester/Year: Spring 2019
A. **TITLE:** Residential & Light Commercial Installation

B. **COURSE NUMBER:** HVAC106

C. **CREDIT HOURS:** (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity)

   - # Credit Hours: 2
   - # Lecture Hours: 2 per week
   - # Lab Hours: per week
   - Other: per week

   Course Length: 15 Weeks

D. **WRITING INTENSIVE COURSE:** Yes ☑ No ☐

E. **GER CATEGORY:** None: ☐ Yes: GER

   If course satisfies more than one: GER

F. **SEMESTER(S) OFFERED:** Fall ☐ Spring ☑ Fall & Spring ☐

G. **COURSE DESCRIPTION:**

   This course covers the procedures and materials required to install residential and light commercial heating and air conditioning equipment. Field piping and electrical wiring installation is studied. Material takeoffs are performed utilizing building plans, and from field measurements. Thermostats and control equipment is also covered.

H. **PRE-REQUISITES:** None ☐ Yes ☑ If yes, list below:

   CONS151

   **CO-REQUISITES:** None ☐ Yes ☑ If yes, list below:

   ACHP105
1. **STUDENT LEARNING OUTCOMES:** *(see key below)*

By the end of this course, the student will be able to:

<table>
<thead>
<tr>
<th>Course Student Learning Outcome [SLO]</th>
<th>Program Student Learning Outcome [PSLO]</th>
<th>GER [If Applicable]</th>
<th>ISLO &amp; SUBSETS</th>
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<tbody>
<tr>
<td>1. Explain components and functions in commercial and residential HVAC applications, relating them to building plans.</td>
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<td>3-Found Skills ISLO ISLO</td>
<td>Subsets Subsets Subsets</td>
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<td>2. Explain and perform the proper procedures used in installing components, field piping, and field wiring.</td>
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<td>3-Found Skills ISLO ISLO</td>
<td>Subsets Subsets Subsets</td>
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<td>3. Demonstrate procedures for evacuating and recharging a refrigeration system</td>
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<td>3-Found Skills ISLO ISLO</td>
<td>Subsets Subsets Subsets</td>
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<td>4. Demonstrate procedures for starting up newly installed HVAC equipment</td>
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<td>3-Found Skills ISLO ISLO</td>
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<td>5. Demonstrate the evaluation of operating HVAC equipment</td>
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<td>KEY</td>
<td>Institutional Student Learning Outcomes [ISLO 1 – 5]</td>
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<tr>
<td>ISLO #</td>
<td>ISLO &amp; Subsets</td>
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</tbody>
</table>
| 1 | Communication Skills  
Oral [O], Written [W] |
| 2 | Critical Thinking  
Critical Analysis [CA], Inquiry & Analysis [IA], Problem Solving [PS] |
| 3 | Foundational Skills  
Information Management [IM], Quantitative Lit./Reasoning [QTR] |
| 4 | Social Responsibility  
Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T] |
| 5 | Industry, Professional, Discipline Specific Knowledge and Skills |

*Include program objectives if applicable. Please consult with Program Coordinator*
J. **APPLIED LEARNING COMPONENT:** Yes [ ] No ✗

If YES, select one or more of the following categories:

- Classroom/Lab
- Internship
- Clinical Placement
- Practicum
- Service Learning
- Community Service
- Civic Engagement
- Creative Works/Senior Project
- Research
- Entrepreneurship (program, class, project)

K. **TEXTS:**

L. **REFERENCES:**

M. **EQUIPMENT:** None ✗ Needed:

N. **GRADING METHOD:** A-F

O. **SUGGESTED MEASUREMENT CRITERIA/METHODS:**

Exams, Quizzes, Homework

P. **DETAILED COURSE OUTLINE:**

1. 1. **Split Systems**
   1.1. Gas furnaces
   1.2. Cased AC split systems
   1.3. Mini splits
   1.4. Oil furnaces
   1.5. Electric air handlers
   1.6. Split system controls
2. **Packaged units**
   2.1. Field wiring
   2.2. Field piping
   2.3. Ductwork attachment
   2.4. Packaged heat pumps
3. **Air Handlers**
   3.1. DX/ Gas systems
   3.2. Chilled water/ Gas systems
   3.3. Fan maintenance
   3.4. Economizers
   3.5. Commercial controls
Q. LABORATORY OUTLINE: None ☐ Yes ☑