STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY
CANTON, NEW YORK

MASTER SYLLABUS

COURSE NUMBER – COURSE NAME
HVAC105 – Heating Systems II

Created by: Stan Skowronek
Updated by: Paul Todd

Canino School of Engineering Technology
Department: Mechanical & Energy Systems
Semester/Year: Fall 2018
A. **TITLE:** Heatings Systems II

B. **COURSE NUMBER:** HVAC105

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

- # Credit Hours: 3
- # Lecture Hours: 3 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:

HVAC103 Heating Systems I, and HVAC 104

**CO-REQUISITES:** None ☒ Yes ☐ If yes, list below:
I. **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><strong>GER</strong> [If Applicable]</th>
<th><strong>ISLO &amp; SUBSETS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Explain components and functions in commercial and residential HVAC applications, relating them to building plans</td>
<td>N/A</td>
<td>3-Found Skills ISLO ISLO</td>
<td>QTR Subsets Subsets Subsets</td>
</tr>
<tr>
<td>B. Explain and perform the proper procedures used in installing components, field piping, and field wiring</td>
<td>N/A</td>
<td>3-Found Skills ISLO ISLO</td>
<td>QTR Subsets Subsets Subsets</td>
</tr>
<tr>
<td>C. Demonstrate procedures for starting up newly installed HVAC equipment</td>
<td>N/A</td>
<td>3-Found Skills ISLO ISLO</td>
<td>QTR None Subsets Subsets</td>
</tr>
<tr>
<td>D. Demonstrate the evaluation of operating HVAC equipment</td>
<td>N/A</td>
<td>3-Found Skills ISLO ISLO</td>
<td>QTR Subsets Subsets Subsets</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISLO ISLO ISLO</td>
<td>Subsets Subsets Subsets Subsets</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISLO ISLO ISLO</td>
<td>Subsets Subsets Subsets Subsets</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISLO ISLO ISLO</td>
<td>Subsets Subsets Subsets Subsets</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISLO ISLO ISLO</td>
<td>Subsets Subsets Subsets Subsets</td>
</tr>
<tr>
<td>ISLO</td>
<td>ISLO</td>
<td>ISLO</td>
<td>Subsets</td>
</tr>
<tr>
<td>------</td>
<td>------</td>
<td>------</td>
<td>---------</td>
</tr>
<tr>
<td>ISLO</td>
<td>ISLO</td>
<td>ISLO</td>
<td>Subsets</td>
</tr>
<tr>
<td>ISLO</td>
<td>ISLO</td>
<td>ISLO</td>
<td>Subsets</td>
</tr>
<tr>
<td>ISLO</td>
<td>ISLO</td>
<td>ISLO</td>
<td>Subsets</td>
</tr>
<tr>
<td>ISLO</td>
<td>ISLO</td>
<td>ISLO</td>
<td>Subsets</td>
</tr>
</tbody>
</table>
| ISLO # | Communication Skills  
Oral [O], Written [W]  |
| ISLO # | Critical Thinking  
Critical Analysis [CA], Inquiry & Analysis [IA], Problem Solving [PS]  |
| ISLO # | Foundational Skills  
Information Management [IM], Quantitative Lit./Reasoning [QTR]  |
| ISLO # | Social Responsibility  
Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]  |
| ISLO # | 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:**

N/A

M. **EQUIPMENT:** None ☐ Needed: Technical enhanced classroom

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

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

Exams, Quizzes, Homework, and Participation

P. **DETAILED COURSE OUTLINE:**

1. Hydronic Systems
   1.1. Boilers
   1.2. Piping configurations
   1.3. Pumps
   1.4. Expansion tanks
   1.5. Pressure regulators
   1.6. Make up water operation
   1.7. Filling and Purging
   1.8. Combustion analysis
2. Heat Emitters
   2.1. Heating coils
   2.2. Fin Tubing
   2.3. Radiators
   2.4. Radiant panels
   2.5. Radiant floors

Q. **LABORATORY OUTLINE:** None ☐ Yes ☒