

**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:

<u>Course Student Learning Outcome</u> <u>[SLO]</u>	<u>Program Student Learning Outcome</u> <u>[PSLO]</u>	<u>GER</u> <i>[If Applicable]</i>	<u>ISLO & SUBSETS</u>	
A.Explain components and functions in commercial and residential HVAC applications, relating them to building plans		N/A	3-Found Skills ISLO ISLO	QTR Subsets Subsets Subsets
B. Explain and perform the proper procedures used in installing components, field piping, and field wiring		N/A	3-Found Skills ISLO ISLO	QTR Subsets Subsets Subsets
C.Demonstrate procedures for starting up newly installed HVAC equipment		N/A	3-Found Skills ISLO ISLO	QTR None Subsets Subsets
D.Demonstrate the evaluation of operating HVAC equipment		N/A	3-Found Skills ISLO ISLO	QTR Subsets Subsets Subsets
		N/A	ISLO ISLO ISLO	Subsets Subsets Subsets Subsets
		N/A	ISLO ISLO ISLO	Subsets Subsets Subsets Subsets

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KEY	<u>Institutional Student Learning Outcomes [ISLO 1 – 5]</u>
ISLO #	ISLO & Subsets
1	Communication Skills Oral [O], Written [W]
2	Critical Thinking <i>Critical Analysis [CA] , Inquiry & Analysis [IA] , Problem Solving [PS]</i>
3	Foundational Skills <i>Information Management [IM], Quantitative Lit./Reasoning [QTR]</i>
4	Social Responsibility <i>Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]</i>
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:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Classroom/Lab | <input type="checkbox"/> Civic Engagement |
| <input type="checkbox"/> Internship | <input type="checkbox"/> Creative Works/Senior Project |
| <input type="checkbox"/> Clinical Placement | <input type="checkbox"/> Research |
| <input type="checkbox"/> Practicum | <input type="checkbox"/> Entrepreneurship |
| <input type="checkbox"/> Service Learning | (program, class, project) |
| <input type="checkbox"/> Community Service | |

K. **TEXTS:**

Cooper, William B., Raymond E. Lee, Raymond A. Quinlan, Martin W. Sirowatka, Warm Air Heating for Climate Control, 5th Edition, Prentice Hall, 2003

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