

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



MASTER SYLLABUS

**COURSE NUMBER – COURSE NAME
HVAC104 – Heating Systems Lab I**

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 Lab I

B. **COURSE NUMBER:** HVAC104

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

Credit Hours: 2

Lecture Hours: per week

Lab Hours: (2) three-hour labs 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:**

The fundamentals of heating equipment are the emphasis of this course. Students study basic heat transfer and the application of different fuels used in the heating industry. Safe use of hand and power tools is stressed in laboratory work.

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

HVAC103

CO-REQUISITES: None Yes If yes, list below:

HVAC103

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. Select and operate basic service tools and equipment		N/A	3-Found Skills ISLO ISLO	QTR Subsets Subsets Subsets
B. Perform joining techniques to complete tubing and pipe connections		N/A	3-Found Skills ISLO ISLO	QTR Subsets Subsets Subsets
C. Install basic electrical controls and power for heating systems		N/A	3-Found Skills ISLO ISLO	QTR None Subsets Subsets
D. Demonstrate the ability to measure temperature and pressure using appropriate devices		N/A	3-Found Skills ISLO ISLO	QTR Subsets Subsets Subsets
F. Work with a diverse group, completing a common task		N/A	3-Found Skills ISLO ISLO	QTR 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:**

Lab Manual

L. **REFERENCES:**

N/A

M. **EQUIPMENT:** None Needed: NN101 and NS139 and HVAC Tool list

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

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

Lab reports and participation

P. **DETAILED COURSE OUTLINE:**

Q. **LABORATORY OUTLINE:** None Yes

1. Insulation R value on pipes and ducts
2. Change of State of Water
3. Hydronic boiler installs
4. Furnaces installs
5. Chimney installs
6. Pump flow
7. Furnace pressure switch
8. Furnace extraction fan
9. Call of no heat
10. Clock Natural Gas meter
11. Temperature rise on furnace
12. Air flow in duct
13. Air flow balancing
14. Adjustment of gas valve