

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



MASTER SYLLABUS

**COURSE NUMBER – COURSE NAME
HVAC103 – Heating Systems 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 I
- B. **COURSE NUMBER:** HVAC103
- 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:**

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.

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

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 the process of heat transfer		N/A	3-Found Skills ISLO ISLO	QTR Subsets Subsets Subsets
B. Describe types of distribution systems		N/A	3-Found Skills ISLO ISLO	QTR Subsets Subsets Subsets
C. Identify chimney types and proper application		N/A	3-Found Skills ISLO ISLO	QTR None Subsets Subsets
D. Introduction to the control and power circuits of heatine: systems		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:**

Brown, Dorfmueller, Print reading For Construction, 6th ed ,Goodheart- Willcox

L. **REFERENCES:**

N/A

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

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

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

Exams, Quizzes, and Assignments

P. **DETAILED COURSE OUTLINE:**

I. Basic Theory of Heating Systems

A. Heat Transfer

i. Conduction,

ii. Convection,

iii. Radiation

B. Insulation

C. Change of State

i. Water

ii. Steam ice

II. Hydronic systems

A. Pumps

B. Pipes sizing

C. Heat emitters

III. Furnaces

A. Fans B. Ducts

C. Registers and grills

IV. Chimney

A. Natural gas and propane

B. Fuel oil

- C. Wood and coal
- D. Direct venting
- V. Troubleshooting
- A. Customer interaction
- B. Sequence of operation
- C. Electrical circuits
- D. Ladder diagrams

Q. LABORATORY OUTLINE: None Yes