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

MASTER SYLLABUS

COURSE NUMBER – COURSE NAME
HVAC110 – Plumbing

Created by: Michael J. Newtown, P.E.

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Canino School of Engineering Technology

Department: Mechanical & Energy Systems

Semester/Year: Fall 2018

A. **TITLE**: Plumbing

B. **COURSE NUMBER:** HVAC110

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

 # Credit Hours: 3
 # Lecture Hours: 2 **per week**
 # Lab Hours: (2) one-hour lab **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 residential and commercial plumbing are explained in lecture and applied in laboratory projects. Plumbing code is reviewed to ensure compliance and explain how systems operate properly thus ensuring adequate supply of water and removal of waste from buildings.

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:

Course Student Learning Outcome [SLO]	***Program Student Learning Outcome [PSLO]***	***GER*** *[If Applicable]*	***ISLO & SUBSETS***	
A.Explain and demonstrate pipe joining methods		N/A	3-Found Skills ISLO ISLO	QTR Subsets Subsets Subsets
B. Layout distribution systems		N/A	3-Found Skills ISLO ISLO	QTR Subsets Subsets Subsets
C.Explain waste and vent systems		N/A	3-Found Skills ISLO ISLO	QTR None Subsets Subsets
D.Interpret plumbing drawings in plan, side, and isometric views		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	**Institutional Student Learning Outcomes [ISLO 1 – 5]**
ISLO #	**ISLO & Subsets**
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:

Joyce, Michael, Residential Construction Academy Plumbing, Thomson Delmar, 2005

L. REFERENCES:

N/A

M. EQUIPMENT: None ☐ **Needed:** Technical enhanced classroom and laboratory space

N. GRADING METHOD: A-F

O. SUGGESTED MEASUREMENT CRITERIA/METHODS:

Exams, Quizzes, Homework, Laboratory Reports and Participation

P. DETAILED COURSE OUTLINE:

I. Piping Nomenclature
A. Pipe material
B. Purpose of each type
C. Fittings
II. Pipe Joining
A. Soldering
B. Brazing
C. Glue and Priming
D. Mechanical connections
III. Fixtures
A. Lavatories
B. Water Closets
C. Tubs and Showers
D. Kitchen Sinks
E. Washing Machines
F. Dishwashers
IV. Wells
A. Pumps
B. Shallow Wells

C. Deep Wells
D. Components of a well
E. Sizing of well and components
V. Waste removal
A. Drains
B. Vents
C. Piping fittings
D. Septic/ sewage systems
VI. Commercial Piping
A. Cast Iron
B. Plastic
C. Copper
VII. Piping Views of drawings
A. Plan view
B. Side view
C. Isometric view
VIII. Take offs
A. Bill of material
B. Estimates of material
C. Estimating installation time

Q. LABORATORY OUTLINE: None ☐ Yes ☒

1. Soldering
2. Thread cutting
3. Dry fitting pipe and fittings
4. Waste and vents layout
5. Install water closet
6. Install lavatories
7. Install tub/ shower
8. Install well pumps
9. Install expansion tanks
10. Estimating a bathroom material
11. Create an isometric view of existing piping
12. Install water heater