

Course: HVAC206 Hydronic and Pipe Design

Department: HVAC

Course Description:

This course covers the study of concepts for hot water, steam heating and chilled water systems, including pumps, fluid flow, piping, valves, boilers, air venting and condensate handling. Weekly labs will provide related practical experiences including laying out basic one and two pipe systems, calculation of pressure drops through the system and proper pipe sizing methods. Trainers will be used by the student in measurement of fluid flow, supply and return temperatures and the performance of hot water systems. Projects include the design of residential and commercial piping systems, developing specifications and equipment selection.

COURSE OUTCOMES	SAMPLE OUTCOMES ACTIVITIES	SAMPLE ASSESSMENT TOOLS
Upon successful completion of this course students are able to:	To achieve these outcomes students may engage in the following activities:	Student learning may be assessed by:
1. Recognize the categories and functions of hydronic heating and cooling IT, WC, TS	<ul style="list-style-type: none">• Classroom discussion• Textbook reading• Laboratory testing	<ul style="list-style-type: none">• Assigned text readings• Class and lab workshops• Tests and quizzes
2. Describe the function of steam, hot water, brine, and cold water HVAC systems IT, IL, WC	<ul style="list-style-type: none">• Textbook and on-line readings• Video presentations• Classroom discussions• Laboratory demonstrations	<ul style="list-style-type: none">• Tests & Quizzes• In-class conversations• Laboratory evaluations
3. Comprehend the flow of fluids through pipes IT, WC, OC	<ul style="list-style-type: none">• Textbook and on-line readings• ASHRAE Worksheets• Video presentations• Classroom demonstrations	<ul style="list-style-type: none">• Tests, quizzes• Homework assignments• Classroom discussions• Laboratory work
1. Understand the correlations between velocity and pressure inside a pipe system IT, IL, WC, TS, OC	<ul style="list-style-type: none">• Textbook and on-line readings• Laboratory demonstrations• Class and Laboratory discussions• Classroom presentations	<ul style="list-style-type: none">• Tests and quizzes• Written assignments• Homework assignments• Laboratory assignments

<p>2. Safety and proficiency use the tools of the industry IT, IL, WC, TS, OC</p>	<ul style="list-style-type: none"> • Textbook readings • On-line demonstration • Video presentations • Classroom discussions 	<ul style="list-style-type: none"> • Tests, quizzes • Evaluation of use of tools in the laboratory • Homework assignments
<p>3. Design and layout the proper size pipe to satisfy the HVAC needs of an occupied space</p>	<ul style="list-style-type: none"> • Textbook readings • On-line demonstration • Video presentations • Classroom discussions 	<ul style="list-style-type: none"> • Tests, quizzes • Evaluation of use of tools in the laboratory • Homework assignments
<p>4. Realize the career fields this course opens for employment IT, IL, WC, OC</p>	<ul style="list-style-type: none"> • Textbook readings • Video presentations • Classroom collaborative learning • Classroom discussions 	<ul style="list-style-type: none"> • Test quizzes • Homework assignments

This course includes the following core competencies: Information Literacy (IL), Information Technology (IT), Technical Skills (TS),
Written Communication (WC)