

Course discipline/number/title: FST 2612: HVAC/Refrigeration Systems Lab

A. CATALOG DESCRIPTION

1. Credits: 2
2. Hours/Week: 4
3. Prerequisites (Course discipline/number): FST 2518
4. Other requirements: None
5. MnTC Goals (if any): NA

B. COURSE DESCRIPTION: This course covers HVAC operational principles. This includes operating, testing and analyzing gas and oil-fired furnaces, hydronic heating systems, heat pump systems, air conditioning including installation practices and operations air distribution systems. This course will also cover indoor air quality measurements concerns and issues including comfort and psychometrics. Recommended skills and knowledge in electrical with mechanical aptitude. Recommend completion of FST II courses or electrical background.

C. DATE LAST REVISED (Month, year): February, 2022

D. OUTLINE OF MAJOR CONTENT AREAS:

1. Cooling and air distribution systems
2. Heating and cooling systems
3. Installation of heating and air distribution systems
4. Indoor air quality, comfort and psychometrics'

E. LEARNING OUTCOMES (GENERAL): The student will be able to:

1. Analyze, test, and operate forced air gas furnaces.
2. Analyze, test, and operate an oil furnace.
3. Analyze, test, and operate hot water boilers and hydronic systems.
4. Analyze, test, and operate an electric heat pump air handler.
5. Analyze, test, and operate an air distribution system.
6. Analyze, test, measure, and compare indoor air qualities in various locations.
7. Analyze, test, and operating air conditioning units.
8. Evaluate comfort conditions.
9. Plot conditions on a psychrometric chart.
10. Install, diagnose, repair and/or replace heating & cooling systems.
11. Wire related electrical components.
12. Construct related wiring diagrams.

F. LEARNING OUTCOMES (MNTC): NA

G. METHODS FOR EVALUATION OF STUDENT LEARNING: Methods may include but are not limited to:

1. Operational lab
2. Assignments
3. Lab projects

H. RCTC CORE OUTCOME(S). This course contributes meeting the following RCTC Core Outcome(s):
Critical Thinking. Students will think systematically and explore information thoroughly before accepting or formulating a position or conclusion.

Personal and Professional Accountability. Students will take responsibility as active learners for achieving their educational and personal goals.

I. SPECIAL INFORMATION (if any): None