

Course discipline/number/title: FST 2602: HVAC/Refrigeration Systems Theory

A. CATALOG DESCRIPTION

1. Credits: 4
2. Hours/Week: 8
3. Prerequisites (Course discipline/number): FST 2518
4. Other requirements: None
5. MnTC Goals (if any): NA

B. COURSE DESCRIPTION: This course covers HVAC principles. This includes gas and oil-fired furnaces, hydronic heating systems, heat pump systems, air conditioning installation practices and air distribution systems. This course will also cover indoor air quality measurements concerns and issues including comfort and psychometrics.

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

D. OUTLINE OF MAJOR CONTENT AREAS:

1. Operate heating, cooling and air distribution systems
2. Test heating and cooling and air distribution systems
3. Diagnose and repair heating and cooling systems
4. Demonstrate knowledge in the installation of heating and air distribution systems
5. Demonstrate knowledge of indoor air quality, comfort and psychometrics

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

1. Explain, function and operate forced air gas furnaces.
2. Explain, function and operate fuel oil furnace.
3. Explain, function and operate hot water boilers and hydronic systems.
4. Explain, function and operate electric heat pump air handler.
5. Explain, function and operate air distribution system.
6. Explain, measure, and compare indoor air quality.
7. Explain, function and operate air condition units.
8. Explain, comfort and psychometrics'.
9. Identify and demonstrate knowledge of components found on gas, oil, electrical, and hydronic systems.
10. Identify and demonstrate knowledge of components found in air condition, heat pump, and air distribution systems.
11. Measure and plot comfort conditions found on psychometric charts.
12. Explain, the issues related to poor indoor air quality and the importance of indoor air quality.

F. LEARNING OUTCOMES (MNTC): NA

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

1. Written exams
2. Operational lab
3. Written assignments

H. RCTC CORE OUTCOME(S). This course contributes to 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