Faculty members are required to have the outline submitted to the Academic Affairs Office. The course outline is the form used for approval of new courses by the Academic Affairs and Standards Council.

DEPT. PLHT COURSE NUMBER: 1125

NUMBER OF CREDITS: 3 Lecture: 1 Lab: 2

Course Title:
Heating and Air Conditioning Fundamentals

Catalog Description:
Explore heating systems, various energy sources and the technology around modern heating systems. Topics will include controls, sizing, types of heat, venting and distribution requirements. This course will explore the evolving impact of technology and efficiency of systems and energy consumption.

FULFILLS MN TRANSFER CURRICULUM AREA(S)

Goal 1: Communication: ____ by meeting the following competencies:

Goal 2: Critical Thinking: ____ by meeting the following competencies:

Goal 3: Natural Sciences: ____ by meeting the following competencies:

Goal 4: Mathematics/Logical Reasoning: ____ by meeting the following competencies:

Goal 5: History and the Social and Behavioral Sciences: ____ by meeting the following competencies:

Goal 6: The Humanities and Fine Arts: ____ by meeting the following competencies:

Goal 7: Human Diversity: ____ by meeting the following competencies:

Goal 8: Global Perspective: ____ by meeting the following competencies:

Goal 9: Ethical and Civic Responsibility: ____ by meeting the following competencies:

Goal 10: People and the Environment: ____ by meeting the following competencies:

Prerequisites or Necessary Entry Skills/Knowledge:
None
Topics to be Covered:

- Components of heat producing systems
- Components of cooling systems
- Components of air distribution systems
- Safe handling methods of hazardous gases and fluids
- Proper use of personal protective equipment, testing and measuring equipment
- Troubleshooting residential heating and cooling systems

Student Learning Outcomes

1) Identify and describe major components of the heat producing system.
2) Identify and describe major components of the cooling system.
3) Identify and describe major components of the air distribution system.
4) Check and set pressures for propane, natural gas and fuel oil heating systems.
5) Identify and test the operation of all line voltage components.
6) Identify and test the operation of all low voltage components, safety and controlling.
7) Test and set the efficiency of a residential forced air heating/cooling system.
8) Test for carbon monoxide (CO) in residential forced air heating systems.
9) Calculate sensible heat in British thermal unit (BTU).
10) Calculate the cubic foot per minute (CFM) of a residential forced air heating system.
11) Identify the four basic components of a refrigeration system used in residential a/c.
12) Understand four basic components functions of a residential a/c system.
13) Charge, evacuate and reclaim a residential a/c system.

Is this course part of a transfer pathway: Yes ☐ No ☒

Revised Date: May 2020