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: 1120

NUMBER OF CREDITS: 3  Lecture: 1  Lab: 2

Course Title:
Heating and Air Conditioning Electrical and Control Circuits

Catalog Description:
Understand the fundamentals of electricity, electrical controls and circuits, safety and operative controls in residential heating and air conditioning. Students will learn how they operate, what they control and what the controls are protecting and how they are protecting the unit, device or structure.

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:

- Fundamentals of electricity, electrical controls and circuits, electrical symbols
- Application of fundamentals of electricity, electrical controls and circuits to heating and cooling systems
- Use of testing and measuring tools
- Troubleshooting and diagnostics
- Safe and proper methods of working with electricity and electrical circuits

### Student Learning Outcomes

1. Interpret electrical symbols.
2. Identify electrical construction materials.
3. Calculate wire sizes.
4. Calculate simple circuit properties.
5. Troubleshoot simple electrical circuit.
6. Troubleshoot electrical components.
7. Repair individual electrical components.
8. Create complex wiring circuits.
9. Calculate complex circuit electrical properties.
10. Measure complex circuit electrical properties.
11. Troubleshoot complex electrical circuit.
14. Troubleshoot fan/blower electrical circuit.

### Is this course part of a transfer pathway:

- Yes  ☐
- No  ☒

Revised Date: May 2020