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: 1145

NUMBER OF CREDITS: 5  Lecture: 0  Lab: 5

<table>
<thead>
<tr>
<th>Course Title:</th>
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<tbody>
<tr>
<td>Heating and Air Conditioning Installation and Service</td>
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<tr>
<th>Catalog Description:</th>
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<tr>
<td>Develop skills in system operation, installation, service and repair. Emphasis in this course will be on controls and safety components. Testing of systems, calculating corrections, installation of new and replacement parts and methods of system repair will be practiced.</td>
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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:

<table>
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<tr>
<th>Prerequisites or Necessary Entry Skills/Knowledge:</th>
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<td>None</td>
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### Topics to be Covered:
- Installation and service of heat producing systems
- Installation and service of cooling systems
- Installation of venting and 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
- Repair and service heat producing systems
- Repair and service cooling systems
- Review Minnesota State Plumbing & HVAC Code

### Student Learning Outcomes
1. Design a heating/cooling system based on a house plan.
2. Determine codes that apply to system installation.
3. Match control system to equipment types.
4. Identify air control/ventilation system components.
5. Identify testing and service tools.
6. Perform system operation tests.
7. Plan service for system maintenance.
8. Test condensing section problems.
9. Service indoor system components.
10. Service compressor failures.
11. Conduct coolant service.

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

Revised Date: May 2020