Appendix B

New Course or Course Change Proposal Form

<table>
<thead>
<tr>
<th>Date of Proposal:</th>
<th>11/27/12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author:</td>
<td><strong>Todd Huxford</strong></td>
</tr>
<tr>
<td>Proposal Type:</td>
<td>(*)New Course</td>
</tr>
<tr>
<td>Contact for the Course:</td>
<td><strong>Todd Huxford</strong></td>
</tr>
<tr>
<td>Course Designator, Number and Title (i.e.: ACCT 1800, Business Law):</td>
<td>HVAC 220E</td>
</tr>
<tr>
<td>Number of Credits:</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites:</td>
<td>HVAC 2120</td>
</tr>
<tr>
<td>Course Description:</td>
<td>See CCO</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Grading Method:</th>
<th>Grade</th>
<th>Pass/Fail</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Scheduling:</th>
<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
<th>Alternate Years</th>
<th>Variable</th>
<th>On Demand</th>
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<table>
<thead>
<tr>
<th>Instructional Type:</th>
<th>Lecture</th>
<th>Lab</th>
<th>Lecture/Lab</th>
<th>Internship</th>
<th>Seminar</th>
</tr>
</thead>
</table>

(*)Class Maximum: (For New Courses Only) / All Unlimited faculty members of a program or discipline must sign.

<table>
<thead>
<tr>
<th>Faculty Name</th>
<th>Faculty Signature</th>
<th>Class Max</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Todd Huxford</strong></td>
<td><strong>Todd Huxford</strong></td>
<td>25</td>
<td>11/27/12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dean's Name</th>
<th>Dean's Signature</th>
<th>Date</th>
</tr>
</thead>
</table>

*If there is not enough space provided, please use the back of this form for additional signatures or click on a row with the right button of the mouse, select insert and then select insert rows below to add rows to the table.*

Is this Course Proposed as a Liberal Arts Course: **Yes**

If Yes, Which MnTC Area/Areas Will it Fulfill (http://www.mntransfer.org)?

Is This Course a Requirement/Elective for a Specific Program or Programs? **Yes**

If Yes, Which Program(s)? HVAC | R

Describe What is Changing/Being Added, and the Rationale: **The course title and moving all electrical to one class.**

What Impact Will This New Course or Change Have on Other Programs or Areas? **None**

➤ Attach Common Course Outline to this Form.
Coolers/Freezers Electrical Systems & Components
Common Course Outline

Course Information
Organization: South Central College
Developers: Todd Huxford
Development Date: 11/16/2012
Course Number: HVAC2205
Potential Hours of Instruction: 64
Total Credits: 3

Description
This course will cover both commercial coolers and freezers. The electrical components that are used in commercial coolers and freezers will be studied, analyzed, operated, and tested. A large portion of the class will be designated to the drawing and understanding of wiring schematics for the purpose of troubleshooting electrical failures. Proper safety and troubleshooting techniques will be followed. To be successful in this course, you should have knowledge in electrical circuits, refrigeration theory, and refrigeration controls.

Types of Instruction
<table>
<thead>
<tr>
<th>Instruction Type</th>
<th>Contact Hours</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Classroom Presentation</td>
<td>32</td>
<td>2</td>
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<tr>
<td>On-Campus Lab</td>
<td>32</td>
<td>1</td>
</tr>
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</table>

Prerequisites
HVAC2120

Exit Learning Outcomes
External Standards
Critical and Creative Thinking
Teamwork and Problem-solving
Ethical Reasoning and Action
Written and Oral Communication
Foundation and Skills for Lifelong Learning
Civic Knowledge and Engagement - Local and Global

Competencies
1. Examine the importance of following proper safety requirements.
   Learning Objectives
   a. Follow shop safety rules.
   b. Identify situations that are unsafe.
   c. Correct or repair systems that are unsafe.
   d. Lock-out & Tag-out units.

2. Demonstrate the ability to use their multimeter for electrical troubleshooting.
   Learning Objectives
   a. Identify settings on their multimeter.
   b. Describe steps for testing for resistance or continuity.
c. Communicate what tests can be performed with power on.

3. Examine power passing vs power consuming components.
   Learning Objectives
   a. Choose the power passing components on the wiring schematic.
   b. Locate and test power consuming components on the refrigeration unit.
   c. Communicate why power consuming components are wired in parallel.

4. Analyze components that are used to protect the system.
   Learning Objectives
   a. Identify components that protect the system during high ambient temperatures.
   b. Identify components that protect the system during low ambient temperatures.
   c. Identify components that protect the refrigeration sealed system.

5. Analyze the electrical symbols found on system schematics.
   Learning Objectives
   a. Using the electrical symbols locate the component on the refrigeration system.
   b. Draw the electrical symbol for any component found on the refrigeration unit.

   Learning Objectives
   a. Discuss condensing unit locations
   b. List options for removing high ambient temperatures.
   c. Discuss the proper way to make electrical connections.

7. Diagnose electrical system failures.
   Learning Objectives
   a. Troubleshoot electrical failures found in lab equipment.
   b. Use the electrical schematic as a troubleshooting tool.
   c. Complete the final troubleshooting exercise within 30 minutes.

8. Draw wiring schematics from lab equipment.
   Learning Objectives
   a. Convert pictorial diagram to wiring schematics.
   b. Create a wiring schematic using components from walk-ins.

9. Examine the sequence of operation using the wiring schematics.
   Learning Objectives
   a. Identify primary controls.
   b. Trace out the cooling circuit.
   c. Trace out the defrost circuit.
   d. Write out the S.O.P.