A. **Course Description**

- **Credits:** 4.00
- **Lecture Hours/Week:** 3.00
- **Lab Hours/Week:** 1.00
- **OJT Hours/Week:** 0
- **Prerequisites:** None
- **Corequisites:** None
- **MnTC Goals:** None

The student will identify furnace electrical components and circuits, basic procedures required to service and install standard gas, oil and electric furnaces, belt-drive and direct drive blowers, humidifiers and air filtration techniques.

B. **Course Effective Dates:** 8/24/15 – Present

C. **Outline of Major Content Areas**

   As noted on course syllabus

D. **Learning Outcomes**

1. Demonstrate proper HVAC/R technician behavior and participate in the ride along days, as well as recognizing, defining and practicing safe work habits.
2. Analyze and describe gas, oil and electric furnace components. Understand their function and operation within the system.
3. Trace, draw, and analyze heating system schematics diagrams.
4. List the sequence of operation for gas, oil, and electric furnaces. This is an important tool in troubleshooting procedures.
5. List standard furnace installation procedures, including but not limited to gas lines, venting, thermostat, electrical and duct connections.
6. Replace a furnace heat exchanger and explain why this task is necessary.

E. **Minnesota Transfer Curriculum Goal Area(s) and Competencies**

F. **Learner Outcomes Assessment**

   As noted on course syllabus
G. Special Information

None noted