



Western Technical College

10601107 HVACR Forced Air Heating

Course Outcome Summary

Course Information

Description	This course emphasizes the operation, maintenance, testing and repairing of residential furnaces. Gas and oil furnaces will be covered. The learner will use hand tools and test instruments. Topics include combustion, combustion safety, venting, filters, thermostats, heat transfer, gas piping, and carbon monoxide, circulation blowers, gas conversion, furnace components and function and typical location. HVACR is a common reference to Heating, Ventilation, Air Conditioning and Refrigeration.
Career Cluster	Architecture and Construction
Instructional Level	Associate Degree Courses
Total Credits	4
Total Hours	108

Textbooks

Refrigeration and Air Conditioning Technology. 9th Edition. Copyright 2021. Whitman, Bill, Bill Johnson, John Timczyk, and Eugene Silberstein. Publisher: Cengage Learning. **ISBN-13:978-0-357-12227-3**. Required.

Learner Supplies

Safety glasses with side eye protection that meet Z87 OSHA guidelines. **Vendor:** Campus Shop. Required.

Success Abilities

1. Cultivate Passion: Increase Self-Awareness
2. Refine Professionalism: Improve Critical Thinking

Experiential Learning

1. Community Based Learning Project: a key learning outcome of this course is to connect academic learning and civic development while simultaneously addressing a community partner's needs, interests, or problems.

Program Outcomes

1. Install HVACR systems
2. Service HVACR systems
3. Troubleshoot HVACR systems
4. Evaluate HVACR system designs
5. Repair HVACR equipment
6. Analyze HVACR systems

Course Competencies

1. **Practice shop safety.**
2. **Explore the science of heating.**
3. **Use HVACR related tools and instruments.**
4. **Size and assemble piping systems.**
5. **Investigate the operation of a natural gas furnace.**
6. **Investigate the operation of a fuel oil furnace.**
7. **Investigate the operation of an electric furnace.**
8. **Examine the purpose and means of filtering air.**
9. **Examine the operation of thermostats.**
10. **Perform a complete heating service and problem analysis.**
11. **Apply codes and standards.**