



WILLIAM D. FORD CAREER-TECHNICAL CENTER

36455 Marquette Avenue, Westland, MI • (734) 419-2100



2024-2025 School Year

Course Name: Heating, Air Conditioning & Refrigeration II (HVAC)-William D. Ford

CIP Number: 47.0201 **PSN:** 14206

Course Code: V0110 Heating/Air Conditioning/Refrigeration (HVAC) II 1 yr. 3
cr.

V0110M HVAC II(plus Algebra 2 or Math Skills) 1 yr. 2 cr.

Instructor: Jason Skinner

Teacher Assistant: Nicole Holland

Phone Number: (734) 419-2124 **Fax Number:** (734) 595-2127

Email: skinnerj@wwcsd.net **Website:** www.wwcsd.net

Prerequisites: Passing year one of HVAC and being welcomed back second year by instructor.

Credit: This class is valued as 3.0 credits over the course of one year. Successful completion of this one-year CTE program may be counted as any of the following:

- senior year math-related credit
- visual, performing and applied arts credit requirement
- 2nd year world language credit (counselor determination)
- 3rd year science credit (counselor determination)

Textbooks and Instructional Material:

Required Textbook:

Title: *Modern Refrigeration and Air Conditioning 20th Edition*

Online Instruction:

Google Classroom

a) You will receive an email inviting you to join ""

-Open the email and click "Join"

Class Code=

Course Description:

This program teaches students diagnosis, maintenance, installation and repair of residential and commercial heating and air conditioning systems. Second year students will advance their skill sets this year in these areas. We will look to partner students with local companies to provide work based learning opportunities. Students will learn safety, basic electricity, electronics, refrigeration, air conditioning/ventilation and the use of test equipment for installation and troubleshooting in a more advanced technique, this year for second year students they are more self lead instruction. We need to have them ready for industry and working more independently. Students at this level should be able to fluently read schematics. Frequent lab work allows students to apply skills learned in class to real equipment. The curriculum also allows students to use electronic and digital controls for managing energy systems found in large office and industrial buildings. In the second year level they are perfecting their old skills and learning the advanced side of refrigeration such as electric power, motors, commercial and heat pumps.

HVAC-Course Goals and Objectives**Skills Taught:**

- Systems Troubleshooting
- Sheet metal fabrication/installation
- Heating/cooling Installation
- Identification/troubleshooting of domestic/commercial heating and cooling systems
- Pipe cutting, threading, reaming
- Identification/servicing of hot water heating systems
- Estimation of heating/cooling leads
- Boca codes
- Solid State circuits

Core Curriculum Standards Schedule:

The curriculum will provide further exploration and in-depth hands on labs that will bring an enhancement of understanding with the following concepts:

- **Segment 1: HVAC-200: Electrical & Controls**
- **Segment 2: HVAC-210 Refrigeration II**
- **Segment 3: HVAC 215 Sheet Metal**
- **Segment 4: HVAC 220: Heating A/C II**
- **Segment 5: HVAC 230: Heating & Cooling Loads**
- **Segment 6: HVAC 240: BAS Training**
- **Overview:**
- **Refrigeration**
- **Air Conditioning**
- **Gas Heat**

- **Oil Heat**
- **Heat Pumps**
- **Commercial Refrigeration**
- **Problem Solving/Troubleshooting**
- **Green Technology**
- **Trade Skills**
- **Integrated Leadership Skills**
- **Employability and Career Development**

Specialized Equipment:

- Forced air/hydronic heating trainer
- Refrigeration system trainers
- Portable charging and testing units
- Compressors and vacuum pumps
- Residential air conditioners
- Gas and electric furnaces
- Specialized furnace test equipment
- OxyAcetylene brazing/welding
- Heat pumps
- Electronic ignitions trainers

Leadership/CTSO:

All students will apply their knowledge and leadership skills through SkillsUSA. The goal of this organization is for students to develop workplace competencies, such as teamwork, leadership, communication, critical thinking and academic proficiency. Leadership skills are fostered by encouraging students to participate in chapter planning and decision making, as well as run for chapter elected positions. Students may also participate in event-specific classroom competitions, in which projects are evaluated by people in the HVAC industry.

Criteria for Evaluation/Grading Policy:

Grading Framework:

1. Tests/Classwork 40%
2. Employability/Leadership 40%
3. Performance 20%

Grade Distribution:

- A = 90 – 100%
- B = 80 -89%
- C = 70 – 79%
- D = 60 -69%
- E = 0 – 59%

Homework/Paperwork:

Homework may be assigned. It will be due upon the assigned due date. If a situation arises that the student does not complete his/her assignment he/she will be required to complete it by the next class. The grade reduction for a late assignment is 50 percent. Work must be complete to receive a grade. Work turned in past the next class session will not be accepted, and you will receive a zero for that assignment.

Extra Help:

The Instructor will be available for extra help. Feel free to schedule a time that's convenient for both you and your instructor. This could possibly be before or after school. Test/Quizzes may be read aloud and extended time may be permitted under certain circumstances. Seating arrangements may be adjusted based on student needs.

Certificates:

Upon meeting the criteria set forth by the teacher, a student can earn the following certificates for the HVAC Program:

The option to take OSHA 30, EPA Section 608, along with a HVAC Certificate from William D Ford Career Technical Center if you pass the assessment exam through precision.

Credentials:

At the beginning of the semester, students will take the OSHA 30. The EPA Section 608 will be given at the end of the semester. Successful candidates, with qualifying scores and hours, will earn the credential of HVAC Certification when they pass the Precision exam.

Students in this course are eligible to sit for the EPA 608 exam(s), which provides industry credential(s) that will support students in gaining employment in the future. William D. Ford Career Technical Center's students with a grade of C or higher are eligible. This opportunity is offered at no cost to families.

Employability:

Attendance is crucial. One cannot learn how to become an HVAC Technician without showing up. Also, the class is based around teamwork, and when you're not present you only hurt the team. Students are expected to be in class.

Performance:

Each virtual class day is worth one half of the student's weekly grade. This is recorded by the student's attendance, participation and completion of assignments. Performance and employability measures all skills. The student must be a team player, use proper language, be on time, work steadily and efficiently, respect others and their property, etc.

Notes:

1. Students are expected to email the instructor before class starts if they are going to be absent. This is professional and helps the instructor prepare for class since there is a lot of teamwork and partnering in the building process. They should have a parent call the school to excuse the absence.

2. It is the student's responsibility to find out what they have missed while absent.

Program Completion

You will **not** pass with more than 20 absences in the school year. This includes suspensions but not school related absences.

Work-Based Learning:

Work-based learning is a valuable experience in which every student in Career and Technical Education is required to participate. All students will be given opportunities to attend a minimum of one field experience each school year. Those students who do not attend the scheduled experience(s) will be required to find a site where they will spend a minimum of one class period in a business related to their program of study. The student will be required to get the teacher's signed permission, the parent/guardian's signed permission, fill out a training agreement to be signed by the site supervisor, and provide their own transportation to and from the site. Upon completion of the field experience, the students will turn in a question and answer assignment provided by the teacher regarding the experience.

PLEASE RETURN THIS FORM:

Communication is essential for success and support in this class. Please supply your best contact information below. If your information changes, please feel free to contact me or send it in with your student. Thank you for your assistance.

Student Contact Information:

Cell phone: _____ Texting permission: Y OR N (please circle)

Email Address: _____

Parent Contact Information:

Cell phone: _____ Texting permission: Y OR N (please circle)

Email Address: _____

I have also read, and understand, the HVAC syllabus. I also understand that it is expected that I follow all class and school policies. If I do not follow these policies, I will be held accountable for my actions.

Student signature

Print student name

Date

I have read, and understand, the HVAC syllabus and Grading Policy.

Parent/guardian signature

Print parent/guardian name

Date

