

## HVAC U – HVAC Technician Program Air Conditioning Technology

- I. Office Location: 18311 W 10 W Mile Rd STE 103, Southfield MI 48075
- II. Office Phone: 248-450-3105
- III. Email Address: info@hvactrain.com
- IV. Contact Hours: 60 Hours
- V. Prerequisite: None
- VI. Co-requisites: None
- VII. Grading Scale: A to E

### Catalog Course Description:

Prepares students to be multi-level service technicians for residential and light commercial HVAC equipment. Emphasizes hands-on troubleshooting and maintaining residential and commercial total systems. Covers a combination of heating and air-conditioning systems including system design and layout, equipment selection, duct sizing, venting, air balancing and adjustments, air quality control, psychometrics of air conditioning systems, applied installation, refrigeration cycle, and repair of total systems. Also discusses electrical diagrams.

### Goals, Topics, and Objectives

#### Goal Statement

This course provides students with the capability to meet or exceed the requirements for entry-level multifunctional residential and light commercial service technicians. It covers National Skills Standards requirements as specified by several nationally recognized heating/cooling field including ARI/GAMA and VTECS. It further provides the student with readily applicable workplace skills to minimize entry training into the field. Completion of this course will count towards BPI, NATE, and RSES continuous education credits.

#### Core Course Topics and Objectives

Upon successful completion of this course, students should be able to perform the following:

1. Describe concepts of basic of the basic refrigeration principles, the refrigeration cycle, and system components.
2. Discuss airflow requirements, measurements, and air distribution design concepts for Air Conditioning systems.
3. Demonstrate skills related to electrical principle and controls for Air Conditioning systems.
4. Demonstrate the ability to conduct routine maintenance tasks and fill out field service reports.

#### Course Outline:

1. Course Overview – Review of the Basic Refrigeration Cycle
2. Expansion Devices
3. Compressors
4. Evaporators
5. Condensers
6. Typical Operating Conditions
7. Troubleshooting Refrigeration Systems

8. Midterm
9. Refrigeration Applied to the Air Conditioning
10. Reading Wiring Diagrams
11. Electrical Troubleshooting
12. Sequence of Operation
13. Load Calculation
14. Air Distribution
15. Indoor Air Quality
16. Final Exams

## Lab Activities:

To maximize the effectiveness of personal learning, there will be labs activities as well as hands on field experience. You will be assigned a sponsoring contractor and will be required to complete 20 hours of in field shadowing.

## Course Assessment:

### Methods for measuring achievement of objectives:

1. Quizzes – Quizzes will be given throughout the semester. Quiz scores represent 20% of the course grade. Quizzes can be issues online or in class, instructor's discretion.
2. Laboratory Activities – Lab activities vary from in person labs or job shadowing. These will make up 20% of the course grade. Students must attend the sessions as assigned to receive credit.
3. Homework – Homework will consist of assignments based on the textbook's chapters. Homework will also consist of any materials that are provided by the instructor. These assignments will make up 20% if the course grade.
4. Exams – A written midterm and final exam will be given and totally they will represent the 20% of the course grade.
5. Attendance – Attendance will account for 20% of the final grade. Absence from class is part of not completing the required work, so each absence will result in a deduction of the final grade. This will only be explained once; if you cannot make it to class you make early arrangements with the instructor or call and leave a message on his phone or e-mail. All assigned work will be completed by the end of the semester, or a grade of Incomplete will be given.

## Grading Scale:

1. 100 – 90% = A
2. 89 – 80% = B
3. 79 – 70% = C
4. 69- 63% = D
5. 63 – Below - F

## Class Textbook:

Refrigeration and Air Conditioning Technology, 9th Edition by Whitman, Johnson, and Tomczyk – ISBN: 978-1-305-57829-6)

## The textbook will be provided

### Attendance Policy:

Maximum allowable number of absences is 3. The 4th class means automatic failure, but the class can still be attended. Tardiness and leaving early added up to 60 minutes will be counted as an absence.

### Attire:

Appropriate clothing should be always worn. When showing a specific contractor please consult with them for their specific requirements.

### Cheating and Plagiarism:

You are the student so; the work should be your own. You are not cheating anyone other than yourself and your work performance in industry, will be reflected by your what you learn in the classes.

### Cell Phone Usage:

Please refrain from cell phone use in class. If cell phone usage is abused you will be asked to leave.

### Intoxication/Drugs:

HVAC U, LLC has a zero-tolerance policy regarding intoxication or drugs. If evidence of either is recognized, campus security will be requested to remove you from the premises and might involve associated required tests by law enforcement agencies. Do not come to campus or class because of the possibility of endangerment to other students and staff. Additionally, the contractors in this program will require you to be drug tested prior to job showing.

### ADA:

HVAC U, LLC will make necessary specific accommodations, to those students of record at HVAC U, LLC with identified ADA needs.

### Dropping the class:

We provide 100% refund after the 1st week of class. After the 1st initial week, no refunds will be given. Credit for class may be granted on a case-by-case basis. Please contact the training director for specific details.

### Tuition Cost:

\$2279.00