



Articulation Agreement

between

College of Applied Technologies

and

Institution: _____

Address: _____

Phone: _____

Residential and Commercial HVAC/R Program

The University of Northwestern Ohio believes that many high schools and career centers have extensive course work in technical areas that give students a solid foundation for college study. Students who have these technical skills may be granted college credit for their proficiencies.

A partnership agreement between the university and the high schools and career centers is appropriate to recognize and reward those graduates who have acquired the skills for proficiency credit in our commercial and residential Heating Ventilation Air Conditioning & Refrigeration (HVAC/R) program for HV 110 Service and Procedures – I course. The University will grant advanced placement to high school graduates who fulfill course requirements agreed to in this document.

The advantages to advanced placement:

- There will be no expense to the student
- It will reduce the total tuition expense, book fees, and housing costs for your college program.
- It may reduce the time necessary for completion of the program.

The decision on advanced placement will be determined by the following University of Northwestern Ohio authorized personnel: Provost / Vice President for Academic Affairs and the College Registrar.

Awarded credit to a student will be decided on an individual basis. Awarded credit will be reflected on the students' transcript after completion of the first term.

To take advantage of this agreement, the student should:

- Contact the Admission Office at the University of Northwestern Ohio for a formal admissions application to the university (419)998-3120.
- Pick up the Articulation Application your high school counselor or UNOH Admissions Representative. You can also call the University at (419) 998-3120 and have the application form mailed or e-mailed to you.
- The form should be taken to the high school where it should be completed and approved by the student's instructor and counselor. The student will also be required to sign the form stating the he or she has had the necessary training and has met the attached learning outcomes.
- After the form has been signed by the student, approved by the student's instructor and counselor, and the school's chief administrator signs the form, it should be mailed to the Admissions Office at the University of Northwestern Ohio.
- After the materials are reviewed by University personnel, the student will be notified if advanced credit has been awarded.

COURSE AND CREDITS FOR ADVANCED PLACEMENT

HV110 Service & Procedures I (6 credits)

Graduate of a two-year HVAC/R program with "B" or better grades both years in HVAC/R courses. The attached learning outcomes must have been met. Awarded credit will be reflected on the students' transcript after completion of the first term.

CATALOG DESCRIPTIONS OF COURSES LISTED

Residential & Commercial Heating, Ventilation, Air-Conditioning & Refrigeration HVAC/R Course:

HV 110 Service and Procedures - I

The fundamentals of refrigeration operation are discussed, including heat transfer, types of heat, and pressure temperature relationships. Also covered are refrigerant, identification, system recovery, leak testing, evacuation, and charging. Other topics include copper tubing, soft solder, and brazing. Students will also learn proper safety procedures, all trade –related tools, and customer relations with employability skills.

*** All Articulation Agreements will be revaluated every five years, to assure all students are getting, and have the necessary information to have credit granted to them.**

*** All schools desiring to articulate classes with the University of Northwestern Ohio must meet the attached learning outcomes for HV 110 Service and Procedures – I by attaching documentation such as a curriculum or syllabus.**

*** If an educational deficiency pattern is detected with a specific high school or career center, said school will have the opportunity to work with UNOH to remedy the concern.**

*University of Northwestern Ohio, 1441 N. Cable Rd., Lima, OH 45805
Office Phone: 419-998-3120 Fax: 419-998-3139*

We, the undersigned representative of the cooperating University and high school/career centers, agree that a student completing career and technical education training in select automotive technology may be eligible for advanced placement credit. Guidelines for acceptance of that credit are covered in this document.

University of Northwestern Ohio
Institution

Institution

**Provost/Vice President for Academic
Affairs**

Superintendent/Director

Date

Date

Return agreement to:

The University of Northwestern Ohio
Attention: Admissions
1441 N. Cable Rd.
Lima, OH 45805
419-998-3120
articulations@unoh.edu



UNOH Learning Outcomes

Students are required to meet the following learning outcomes to receive articulation for HV 110, Service and Procedures – I at the University of Northwestern Ohio.

Knowledge of a basic refrigeration cycle is required. With the ability to draw it, explain its components and understand how it works.

1. Explain Superheat and how to take it.
2. Explain Sub-cooling and how to take it.
3. Understand the pressure temperature chart & how to read it.
4. Basic knowledge of refrigerants and how they react to pressure & temperature.
5. Understand the terms and differences of recovery, recycling, and reclamation as it pertains to refrigerants.
6. Understand refrigeration manifold gauges and how to use them on a unit.
7. Understand refrigeration service valves.
8. Use a recovery machine properly on a refrigeration unit.
9. Evacuate and leak test a refrigeration unit.
10. Properly charge a refrigeration unit.
11. Basic knowledge of hand tools & fasteners.
12. Basic knowledge of shop safety.
13. Braze and solder copper tubing.