Utica Community Schools in partnership with

Macomb Community College

Presents: School Day - **Dual Enrollment for Climate Control - HVAC**

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| **Year 1** | **Year 2** |
| **Fall – Student Costs about $80** | **Fall** |
| CLCT 1700 - Fundamentals of Controls  Credit Hours: 3.00  ATPP 1200 - Introduction to Plumbing  Credit Hours: 2.00 | CLCT 1400 - Air Conditioning I  Credit Hours: 3.00  ATPP 1120 - Plumbing-Heating  Credit Hours: 2.00 |
| **Winter** | **Winter** |
| CLCT 1200 - Fundamentals of Air Conditioning  and Refrigeration  Credit Hours: 3.00  ATSS 1150 - Steam-Heat Fundamentals  Credit Hours: 2.00 | CLCT 1500 - Heating I  Credit Hours: 3.00  ATSS 1160 - Steam-Steam Boilers (Low & High  Pressure Operations)  Credit Hours: 2.00 |

**CLCT 1700 - Fundamentals of Controls:** The student will gain an understanding of elementary control systems for air conditioning, heating and refrigeration. The student will also gain an understanding of theory and construction of schematic and pictorial wiring diagrams, and study of electrical system components.

**ATPP 1200 - Introduction to Plumbing:** The student will gain an understanding about the specifications, applications, and maintenance of pipes, fittings, and valves that are used in residential plumbing. Students will practice basic knowledge of simple pipe calculations and blueprint reading along with proper installation practices of piping and fittings. Furthermore, students will identify and discuss the proper tools used in the trade with specific consideration to safe working practices.

**CLCT 1200 - Fundamentals of Air Conditioning & Refrigeration:** The student will gain an understanding of theory, application and principles of air conditioning and refrigeration; study of basic cycle, systems, system components, accessories and refrigerants.

**ATSS 1150 - Steam-Heat Fundamentals:** The students will gain an understanding of basic physics concepts such as force, pressure, work, energy, matter, heat, temperature, transfer and effect of heat, expansion and contraction of solids and liquids, heat phenomena of gases, melting and freezing of substances, vaporization, and steam and other vapors.

**CLCT 1400 - Air Conditioning I:** The student will gain an understanding of residential air conditioning systems: application, selection, installation, piping and service, including basic psychrometrics.

**ATPP 1120 - Plumbing-Heating:** The student will gain an understanding of principles of steam and hydronic heating, the various types of steam systems in use, the proper sizing and trapping of steam units. The student will also engage in an extensive study of hydronic heating including: one pipe, two pipe, high temperature and pressure systems. Considerations will be given to heat loss calculations and the design of hydronic systems.

**CLCT 1500 – Heating I:** The student will gain an understanding of the fundamentals of warm air heating: including the function control, service and testing of major components for gas, oil and electric residential and light commercial systems.

**ATSS 1160 - Steam-Steam Boilers (Low & High Pressure Operations):** The student will gain an understanding of firetube, water tube, and package boilers, and their appurtenances. This also includes boiler operation and safety in firing oil, gas, stokers and pulverized fuels. The student will also learn the basic requirements for good combustion and how to maintain them. The student will also learn proper maintenance and repair procedures on the boiler proper including tubes, fans, air preheaters, superheaters and economizers with stress on proper selection of materials and their location; auxiliaries such as coal pulverizers and coal burners.

**These courses are designed to prepare students for success in careers in advanced manufacturing across many industries**, including automotive die/mold, medical, aerospace, defense, renewable energy, “green” technologies, and consumer products. This program is ideal for those who enjoy working with their hands.

\*Some courses may exceed the given UCS contribution. In such cases, students will have to pay to attend their course.

**Students are required to drop two UCS courses to participate in this School Day - Dual Enrollment for Climate Control - HVAC. Transportation will be provided by UCS, and you be back at your high school prior to the end of the school day.**