



# Wayne County Community College District

## COURSE SYLLABUS

### HVA 100 Introduction to HVAC and Hermetic Systems

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**CREDIT HOURS:** 5.00

**CONTACT HOURS:** 75.00

**COURSE DESCRIPTION:** This course covers theories, application and principles of refrigeration and hermetic (sealed) systems with an emphasis on refrigeration cycles, components, and accessories. Topics include thermodynamics, common refrigerants and their chemical make-up, as well as chemical properties of refrigerants and the resulting conditions. This course covers application, installation and servicing of hermetic systems including domestic refrigerators, freezers, room coolers, water coolers and humidifiers. The use of heat pump (reverse refrigeration effect), direct, centrifugal, rotary compression and absorption methods along with their mechanical construction of same will also be discussed.

**PREREQUISITES:** None

#### **EXPECTED COMPETENCIES:**

*Upon completion of this course, the student will be familiar with:*

- Describe and understand the laws of thermodynamics
- Identify basic refrigeration components, systems, and accessories
- Correctly use flaring tools on copper tubing and reading measuring tapes
- Correctly use swaging tool on copper tubing
- Properly measure, cut, fit and solder ½" or ¾" type "M" tubing with propane (or MAPP) using 95/3 soft solder and proper solder flux and ACR tubing using oxy-acetylene and brazing rod
- Identify refrigerates and understand their chemical signature.
- Understand and describe a Heat Pump and it's use
- Properly test and read analog and digital pocket type thermometers
- Properly disassemble, discuss and reassemble of manifold gauges and properly read pressures on gauges
- Properly disassemble, reassemble, test and read analog and digital multi-meters, amprobes and ohm meter scale
- Demonstrate the proper method of installing Top-A-Line valves

#### **ASSESSMENT METHODS:**

Student performance may be assessed by examination, quizzes, case studies, oral conversation, group discussion, oral presentations. The instructor reserves the option to employ one or more of these assessment methods during the course.

#### **GRADING SCALE:**

90%-100% = A  
80%-89.9% = B  
70%-79.9% = C



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60%-69.9% = D  
<60% = E