



COURSE SYLLABUS

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COURSE: **AHR 212 ADVANCED COMFORT SYSTEMS**

HOURS: Lecture: 2 Lab/Shop: 6 Work Exp/Clinical: 0 Credits: 4

COURSE DESCRIPTION:

This course covers water-cooled comfort systems, water-source/geothermal heat pumps, and high efficiency heat pump systems including variable speed drives and controls. Emphasis is placed on the application, installation, and servicing of water-source systems and the mechanical and electronic control components of advanced comfort systems. Upon completion, students should be able to test, analyze, and troubleshoot water-cooled comfort systems, water source/geothermal heat pumps and high efficiency heat pumps.

PREREQUISITE(S): AHR 114

COREQUISITE(S): None

TEXTBOOK(S) & OTHER SPECIAL REQUIREMENTS:

Open Educational Resources (OER) are listed in the course Moodle.

STUDENT LEARNING OUTCOMES:

Upon successful completion of this course, the student will be able to:

1. Demonstrate safe practices and procedures with tools, materials, and industry accepted test equipment covered in the course.
2. Identify components of water-cooled comfort systems, water-source/geothermal heat pumps, and high efficiency heat pumps.
3. Compare and contrast standard and high efficiency heat pumps.
4. Design and size earth coupled piping loops for geothermal heat pump operation.
5. Describe geothermal heat pump operation.
6. Test duct systems for proper airflow and make adjustments.
7. Introduce ductless air conditioning and heat pumps.
8. Describe differences in DC voltage compressors, motors and controls found in ductless systems.
9. Understand the characteristics of HVAC equipment made outside the US that is often specified by designers.

*****Please refer to the online version of the Richmond Community College Program & Course Catalog and the Student Handbook for current academic and general information.**