

# Heating, Ventilation, Air Conditioning & Refrigeration (HVAC)

## **HVC1074, COOPERATIVE INTERNSHIP, 4 hours.**

The student serves an internship in the trade they are training in lieu of attending on campus classes. The student is interviewed and employed by a business organization under provisions set forth in the training agreement. Supervision is conducted by the employer and college coordinator as outlined in the training agreement.

## **HVC1211, EPA 608, 1 hour.**

This course will cover information from section 608 of the Clean Air Act and act as a prep course leading up to a student taking the certification test to meet EPA refrigerant handling requirements.

## **HVC1221, WORKPLACE SKILLS, 1 hour.**

This course will address some of the non-technical skills of personal and interpersonal relationships used at the work environment. The student should be able to identify the job skills necessary to have a successful career in the field of their choice. Topics included listening skills, oral communication, human relations, decision making/problem solving, how to work as a team, time and resource management, work ethics, career planning and resume building

## **HVC1231, SAFETY ORIENTATION/ OSHA 10, 1 hour.**

This course will cover select safety topics commonly encountered in the construction industry as noted by the Occupational Health and Safety Administration (OSHA).

## **HVC1233, SHEET METAL FABRICATION, 3 hours.**

This course will cover the design, layout and building of ductwork commonly found in HVAC applications with an emphasis on craftsmanship to minimize restrictions and maximize system airflow.

## **HVC1414, HVAC FUNDAMENTALS, 4 hours.**

This course will cover the theory and principles of refrigeration and how they are applied. We will look at the major components, controls and test

equipment common to all compression refrigeration system, along with the skills and procedures used when working in the industry.

## **HVC1424, HVAC FUNDAMENTALS LAB, 4 hours.**

This course will be the practical hands-on application of the refrigeration & electricity lecture classes and how they are applied.

## **HVC1434, ELECTRICAL FUNDAMENTALS, 4 hours.**

Course will cover A.C. and D.C. electrical theory, functions of switches, controls, relays, and transformers, reading, building and interpreting wiring diagrams. Student will develop a solid understanding of different types of electrical circuits to prepare students for troubleshooting.

## **HVC1481, HVAC SPECIAL PROJECT, 1 hour.**

Independent study of the basic principles and theories of the operation of special refrigeration systems.

## **HVC1533, ELECTRICAL FUNDAMENTALS LAB, 3 hours.**

Material covered in lab will be the hands-on application of electricity material covered in the HVC1433 lecture class. Co-requisites: HVC1433 Electricity for Air Conditioning & Refrigeration I.

## **HVC1633, AIR CONDITIONING DESIGN, 3 hours.**

Course will cover theory and application of heat loss/gain estimating, equipment selection, distribution system design and sizing. Practical application includes the design and layout of a residential air conditioning system.

## **HVC2382, MOTORS & CONTROLS, 2 hours.**

This course will cover motors commonly used in the HVAC industry. This will include single-phase PSC, CSCR, CS and shaded pole motors, three-phase motors and ECM motors. Motor theory and principles of operation, application and troubleshooting of each motor will be covered.

## **HVC2413, HEATING SYSTEM FUNDAMENTALS, 3 hours.**

This course is designed to establish a foundation in gas, electric and heat pump heating fundamentals. Content includes; combustion, safety controls, ignition

controls, installation guidelines, and the sequence of operation for standard and high efficiency furnaces.

## **HVC2433, RESIDENTIAL CONTROLS, 3 hours.**

This course will cover the theory of operation of controls used on gas furnaces, electric cooling, electric heat, and heat pump systems. Components are covered on an individual basis & in total system operation.

## **HVC2443, RESIDENTIAL CONTROLS LAB, 3 hours.**

This course will cover the application of operating and wiring controls used on gas furnaces, electric cooling, electric heat, and heat pump systems. Components are covered on an individual basic and in total system operation.

## **HVC2463, AIR CONDITIONING EQUIPMENT ANALYSIS, 3 hours.**

Theory of mechanical and electrical diagnosis procedures on heat pumps, central cooling, gas heating, electric heat, and refrigeration units.

## **HVC2473, AIR CONDITIONING EQUIPMENT ANALYSIS LAB, 3 hours.**

Application of mechanical and electrical diagnosing procedures on heat-pump, central cooling, gas heating, electric heat and refrigeration units.

## **HVC2513, HEATING LAB, 3 hours.**

This course is designed to be taught concurrent with Heating, HVC2413. Lab assignment will be assigned to provide the student the opportunity to gain hands-on experience in the installation, troubleshooting and repairing gas and electric furnace equipment.

**T** This course is approved by the Kansas Board of Regents for System Wide Transfer among all Kansas public postsecondary institutions offering an equivalent course. Additional courses may also be eligible for transfer. Please visit the FSCC Registrar to learn more. \*Offered on demand only. +Offered in 1 to 3 hour increments.