

**Course Objectives/Course Outline  
Spokane Community College**

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**Course Title: Refrigeration System Diagnostics**

**Prefix and Course Number: AIRC 203**

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**Description:** The purpose of this course is to assist students as they seek to advance through the various levels of the program. This starts with refrigeration system accessories, desiccants and driers, defrosting methods, refrigeration system controls, and piping. Electrical skills will be further developed, exploring the use of electric motors in refrigeration systems, capacitors, motor protective devices, and code compliance. Additional subjects will include a review of thermostats, relays, contractors, starters, test equipment, and troubleshooting. Lab exercises will focus on strengthening technician skills through the use of schematics, troubleshooting procedures, and customer service techniques.

**Course Learning Outcomes:**

**By the end of this course, a student should be able to:**

- Describe the operation, selection and application for accessories
- State the purpose of desiccant driers
- Ways in which it works
- List three common desiccants used today
- Describe the differences between a drier and suction line filter
- State the principle on which all moisture indicators work
- Define various defrosting methods
- Explain advantages and disadvantages of each method
- Determine the pressure drop for commonly used refrigerant piping
- Explain why pressure drop must be minimized
- Utilize common pipe sizing tables,
- Describe the proper procedures for diagnosing compressor problems and replacement

**Course Outline:**

**I. Refrigeration accessories**

- A. condensing water regulators
- B. check valves
- C. oil separators
- D. compressor lubrication
- E. Heat exchangers
- F. Vibration eliminators
- G. operating and safety controls
- H. evaporator pressure regulators
- I. solenoid valves
- J. Refrigeration system Piping
- K. Compressor replacement and evacuation

**II. Desiccant and driers**

- A. purpose of desiccants
- B. Difference between a drier and suction line filter
- C. principle on moisture indicators work

**III. Controls**

- A. Defrosting methods

B. Motors in a refrigeration system