



South Central College

AST 2812 Basic Air Conditioning

Course Outcome Summary

Course Information

Description	This course covers the principles of air conditioning. Various system types, malfunction diagnosis, testing, and repair are studied in the classroom. Practical work such as component replacement, charging, and performance testing will be on actual systems. (Prerequisite: Admission into the Automotive Service program and AST1112 or instructor approval)
Total Credits	2
Total Hours	48

Types of Instruction

Instruction Type	Credits/Hours
Lecture	1/16
Lab	1/32

Pre/Corequisites

Admission into the Automotive Service program

Institutional Core Competencies

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies

1. Exhibit professionalism

Learning Objectives

Describe refrigerant safety precautions / refrigerant equipment usage
Exhibit shop safety practices

2. Describe air conditioning operating principals

Learning Objectives

Identify air conditioning laws
Define air conditioning terms
Describe air conditioning system component operation

3. Perform air conditioning maintenance

Learning Objectives

Identify different air conditioning oils, determine recommended oil and oil capacity for system
Measure air conditioning oil level, diagnose oil condition, determine correct oil to add
Perform air conditioning system flush, determine need for additional A/C system filter
Identify abnormal operating noises in the A/C system; determine necessary action
Remove, inspect, and reinstall A/C compressor, mountings, determine correct oil quantity
Inspect, remove, and/or replace A/C compressor drive belts, pulleys, tensioners and visually inspect A/C components for signs of leaks; determine needed action

4. Perform correct use and maintenance of refrigerant handling equipment according to equipment manufacturer's standards

Learning Objectives

Identify R-134 and R-12 refrigerant systems by label or gauge hose fittings
Describe R134A temperature pressure relationship
Identify refrigerant type using refrigerant identifier
Describe leak testing methods
Perform A/C leak test; determine necessary action
Recycle refrigerant / test for non-condensable gases / label and store
Identify and recover A/C system refrigerant, test for sealants

5. Performance test air conditioning; A/C system malfunctions

Learning Objectives

Identify and interpret heating and air conditioning problems; determine needed action
Select and connect proper A/C gauge set depending on refrigerant type
Interpret manifold gauge readings
Partial charge air conditioning system
Evacuate air conditioning system
Charge air conditioning system / hand manifold gauge set
Charge air conditioning system / charging station

6. Describe air conditioning systems controls

Learning Objectives

Identify air conditioning vacuum controls
Identify air conditioning air flow and identify the source of A/C system odors
Inspect evaporator housing drain; perform necessary action

SCC Accessibility Statement

South Central College strives to make all learning experiences as accessible as possible. If you have a disability and need accommodations for access to this class, contact the Academic Support Center to request and discuss accommodations. North Mankato: Room B-132, (507) 389-7222; Faribault: Room A-116, (507) 332-7222.

Additional information and forms can be found at: www.southcentral.edu/disability

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