COURSE SYLLABUS
AUMT 1345-344/345 — Automotive Climate Control Systems (Dual Credit)

Semester/Year: Spring 2026
Start Date: January 15, 2026
Credit/Contact Hours: 3 Credit Hours (2 Lec., 4 Lab.)
Instructor: Mr. Andy Homan
Location: Brownfield High School Room 16 and Lubbock Center — 3907 Ave. Q, Lubbock, TX 79412 (Office #136B)
E-mail: | ahoman@southplainscollege.edu also via Blackboard Message
Office Hours: Posted after classes begin or by appointment
South Plains College improves each student's life.
For Intellectual Exchange, Disabilities, Non-Discrimination, Title IX Pregnancy Accommodations, CARE (Campus Assessment, Response, and Evaluation) Team, and Campus Concealed Carry, click here: https://www.southplainscollege.edu/syllabusstatements/

I. GENERAL COURSE INFORMATION

Course Description

AUMT 1345, Automotive Climate Control Systems, focuses on theory and hands-on application of diagnosing and repairing automotive air conditioning and heating systems. Topics include manual and electronic climate control systems, the basic refrigeration cycle, air distribution, engine cooling/heating relationships, and **EPA guidelines** for refrigerant handling. May be taught manufacturer-specific.

Course Goals / Objectives

Using appropriate safety procedures, students will:

- Explain the operation of the **basic refrigeration cycle**
- Diagnose and repair **air distribution systems**
- Demonstrate proper procedures for **refrigerant recovery/recycling/handling**
- Describe the operation of **A/C and heating controls**, including manual and electronic systems

Core Content Areas (Course Outcomes)

A. A/C System Diagnosis and Repair
B. Refrigeration System Component Diagnosis and Repair (compressor/clutch; evaporator; receiver/drier; condenser; etc.)
C. Heating and Engine Cooling Systems Diagnosis and Repair
D. Operating Systems and Related Controls Diagnosis and Repair (electrical; vacuum/mechanical; automatic/semi-auto controls)

E. Refrigerant Recovery, Recycling, and Handling

Verification of Workplace Competencies (Technical Education)

This course prepares students for ASE-aligned HVAC competencies and supports readiness for **ASE Student Certification (Heating & A/C)** and **EPA 609** (Mobile A/C).

II. SPECIFIC COURSE / INSTRUCTOR REQUIREMENTS

Required Materials

1. Lap top or desk top computer with access to Blackboard.
2. Notebook, pen/pencil
3. Safety glasses + hearing protection for entire course
4. Closed-toe shoes/work boots, jeans/work pants, and required PPE for shop work

Safety, Health, and Attendance Expectations

- Students are expected to attend all classes to be successful.
- If you are sick (fever, cough, vomiting/diarrhea, difficulty breathing), **do not attend**. Follow campus or school guidelines and notify the instructor.
- Shop safety rules are mandatory. Unsafe behavior may result in removal from the shop and loss of points.

Class Attendance Policy

Attendance is required. Excessive absences may result in administrative withdrawal according to SPC policy and instructor discretion. Leaving without notifying the instructor counts as an absence.

Academic Integrity

South Plains College expects honesty and integrity. Cheating, plagiarism, or misrepresenting work is a serious offense and may result in course consequences. If you are unsure what collaboration is allowed, **ask the instructor**. ALL Brownfield ISD rules and guidelines apply to BISD students taking SPC dual credit classes. These rules will be enforced and violations reported to the BISD Administration. Dishonesty will not be tolerated and can lead to removal from the class.

Dress Code (Automotive Program)

- **No open-toe shoes** (no sandals/flip-flops).
- Pants must fit properly; belts required if needed.
- Safety glasses worn at all times in the shop.
- Failure to comply may result in being sent home and counted absent.

Food/Drink

Food and drink are not permitted in classrooms, laboratories, or shops.

Emergency Contacts (Do not leave voicemail)

Brownfield High School Office Staff or Administration

III. GRADING AND ASSESSMENT

Grading Scale

A = 100–90 | B = 89–80 | C = 79–70 | F = 69 and below
A grade of C or higher is required to successfully complete AUMT 1345.

Evaluation Methods

- **Unit Tests + Written Work + Quizzes:** 25%
- **Skills Tests / Lab Sheets / Task Evidence:** 50%
- **Final Exam (Written + Hands-On):** 25%

Unit Tests (Blackboard) — Student-Friendly Policy

Each **Unit Test** is built from the weeks inside that unit.

- Questions pull **from each week** (5 questions per week).
- Students receive **two attempts**.
- **Questions and answer choices vary each attempt.**
- Students must use the **Word Bank**.
- **No credit** for incorrect spelling or “close” word choices. Exact terms matter in automotive work.

IV. COURSE STRUCTURE (5 UNITS / 16 WEEKS)

Unit 1 — Foundations: Safety, Refrigeration Cycle, EPA (Weeks 1–3)

Focus: shop safety, refrigerant hazards, refrigeration fundamentals, EPA 609 basics

Unit 2 — A/C Components & Diagnostics (Weeks 4–6)

Focus: compressor/clutch, pressures, condenser/evaporator, receiver-drier/accumulator, leak detection

Unit 3 — Heating & Engine Cooling Systems (Weeks 7–9)

Focus: coolant systems, heater core/blend doors, pressure testing, flush/fill, heater complaints

Unit 4 — Controls & Data Diagnostics (Weeks 10–12)

Focus: HVAC electrical, vacuum systems, manual vs automatic controls, sensors/actuators, scan tool data

Unit 5 — Advanced Diagnostics & Course Completion (Weeks 13–16)

Focus: diagnosis projects, full-system scenarios, final review/EPA 609 (if needed), final written + hands-on, reflection/celebration

V. WEEKLY SCHEDULE (STARTING JANUARY 15)

Note: Dates may adjust due to high school calendar conflicts, weather days, testing schedules, or campus events. Students are responsible for staying current in Blackboard.

Week 1 (Jan 15 – Feb 1)

- Course Introduction
- Shop Safety Rules and PPE
- Refrigerant Safety + Environmental Hazards

Week 2 (Feb 2 – Feb 8)

- Basic Refrigeration Cycle
- Heat Transfer Principles
- Pressure/Temperature Relationships

Blackboard Assignment: A1 Refrigeration Cycle & Safety Walkthrough

Week 3 (Feb 9 – Feb 15)

- EPA 609 Certification Preparation
- Environmental Laws and Regulations
- Refrigerant Recovery, Recycling, and Handling

Blackboard Assignment: A2 EPA 609 Prep & Recovery Readiness

Week 4 (Feb 16 – Feb 22)

- Compressor and Clutch Operation
- Oil Types and Capacities
- System Pressure Readings and Interpretation

Blackboard Assignment: A3 Compressor, Clutch & Oil Verification

Week 5 (Feb 23 – Mar 1)

- Evaporator and Condenser Function
- Receiver/Drier and Accumulator Purpose and Diagnosis

Blackboard Assignment: A4 Heat Exchangers & Moisture Managers

Week 6 (Mar 2 – Mar 8)

- Leak Detection Methods (UV dye, electronic, pressure testing)
- Lab practice

Blackboard Assignment: A5 Leak Detection Tri-Method Lab
Unit 2 Test opens this week (covers Weeks 4–6)

Week 7 (Mar 9 – Mar 15)

- Cooling System Overview
- Coolant Types and Properties
- Pressure Testing Cooling Systems

Week 8 (Mar 16 – Mar 22)

- Heater Core Operation and Diagnosis
- Blend Door Function
- Thermostat and Water Pump Roles

Blackboard Assignment: A6 Cooling System Pressure & Heater Flow

Week 9 (Mar 23 – Mar 29)

- Coolant Flush and Fill Lab
- Diagnosing Heater Complaints
- Lab Checklist and Evaluation

Blackboard Assignment: A7 Coolant Service Pro
Unit 3 Test opens this week (covers Weeks 7–9)

Week 10 (Mar 30 – Apr 5)

- Electrical Components of Climate Control
- Relays, switches, resistors, blower motors

Blackboard Assignment: A8 Blower Circuit & Controls

Week 11 (Apr 6 – Apr 12)

- Manual vs Automatic Temperature Controls
- Scan Tool Basics
- Vacuum-Operated Controls

Blackboard Assignment: A9 Doors, Ducts & Air Distribution

Week 12 (Apr 13 – Apr 19)

- Climate Control Sensors and Actuators
- Using Scan Tool Data for Diagnosis

Blackboard Assignment: A10 Scan-Tool Sensor Deep-Dive
Unit 4 Test opens this week (covers Weeks 10–12)

Week 13 (Apr 20 – Apr 26)

- Control System Diagnosis Project
- Compare/Contrast Manual vs Automatic
- Sensor Testing + Documentation

Blackboard Assignment: A11 Manual vs Automatic Controls Comparison

Week 14 (Apr 27 – May 3)

- Full-System Diagnostic Scenarios (electrical + mechanical)
- Case Study Work

Blackboard Assignment: A12 Full-System Diagnostic Case (Capstone)

Week 15 (May 4 – May 10)

- Final Review (cycle, components, controls, diagnostics)
- EPA 609 Exam (if not completed earlier
- Final Exam
- Final Hands On Skills Test

Blackboard Assignment: A13 EPA 609 Proof & Handling Protocol
Unit 5 Test opens this week (covers Weeks 13–15)
Blackboard Assignment: A14 Final Skills Evidence Pack

VI. ASSIGNMENTS AND BLACKBOARD SUBMISSION EXPECTATIONS

- Most major assignments are submitted as a **single PDF** containing: photos, readings, tables, and reflections.
- File naming format: **A#_LastName_FirstName.pdf**
- Late work policy: follow instructor directions posted in Blackboard (unless otherwise stated, late work may not be accepted).
- Students must follow all safety steps in labs. Unsafe work may earn a zero.

VII. STUDENT SUPPORT SERVICES / REQUIRED SYLLABUS STATEMENTS

For Intellectual Exchange, Disabilities, Non-Discrimination, Title IX Pregnancy Accommodations, CARE Team, and Campus Concealed Carry, use the official SPC syllabus statements link provided by the college.
(Your original link line can remain exactly as-is.)

VIII. SCANS COMPETENCIES + FOUNDATION SKILLS

SCANS and foundation skills apply across course objectives (time, teamwork, information processing, safety, systems thinking, technology use, communication, and professionalism).
(You may keep your full SCANS list as currently written.)