NC AU147: AUTOMOTIVE CLIMATE CONTROL SYSTEMS SERVICE AND REPAIR

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2025
Credits:	0
Total Contact Hours:	63
Lecture Hours :	27
Lab Hours:	36
Hours Arranged:	0
Outside of Class Hours:	54
Total Student Learning Hours:	117
Strongly Recommended:	AUTO 146 or NC AU146; ENGL C1000; MATH 144.
Transferable to CSU:	No
Transferable to UC:	No
Grading Method:	Non-Credit Course

Catalog Course Description

Intended for the incumbent worker, returning student, or person seeking a career change into the automotive service industry. This course is part of the Automotive Service and Repair curriculum intended for students with availability in the evening. The course covers essential HVAC system theory; inspection, service, and repair. Course prepares students for ASE HVAC (A7) certification. This course is the noncredit equivalent of credit course AUTO 147. 27 lecture hours, 36 lab hours.

Course Objectives

- Identify refrigerant and recommend corrective action.
- Perform refrigerant recovery & recycling following local laws and manufacturer's procedures and specifications.
- Check system pressure and determine corrective action.
- Test compressor operation and determine corrective action.
- Remove and replace compressor, condenser and metering devices according to manufacturer's procedures and specifications.
- Test blower motor operation and determine corrective action.
- Inspect electronically controlled systems using DVOM and scan tool.

Major Course Content

1. HVAC theory
    a. Body comfort
    b. Heat, matter and pressure
    c. Refrigerant
    d. Refrigeration systems
2. Service equipment & procedures
    a. Moisture & moisture removal
    b. Refrigerant recovery & recycling
    c. System pressure
3. Air distribution control
    a. Air inlet control
    b. Air outlet control
    c. Air speed control
    d. Air mix control
4. Compressors
5. Metering devices
6. Electronically controlled systems / Automatic A/C

Lab Content

1. Diagnosis, service and repair
    a. Moisture & moisture removal
    b. Refrigerant recovery & recycling
    c. System pressure measurement & analysis
    d. Refrigerant identification
2. Air distribution control testing
    a. Air inlet control testing
    b. Air outlet control testing
    c. Air speed control testing
    d. Air mix control testing
3. Compressor diagnosis, service and repair
4. Metering device diagnosis, service and repair
5. Electronically controlled systems / Automatic A/C

Suggested Reading Other Than Required Textbook

Industry-related technical articles from periodicals and technical journals.

Examples of Required Writing Assignments

Students will be assigned industry based technical article evaluation from trade journals.

Examples of Outside Assignments

ASE prep/review questions, electronic service information to complete guided discovery based learning.

Instruction Type(s)

Lab, Lecture