

# AUT 253 : AUTOMOTIVE AIR CONDITIONING

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## Transcript title

Automotive Air Conditioning

## Credits

3

## Grading mode

Standard letter grades

## Total contact hours

72

## Lecture hours

12

## Lab hours

60

## Prerequisites

AUT 102.

## Recommended preparation

or to be taken with

## Course Description

A hands-on study of automotive air conditioning and heating systems, concurrent with EPA Recovery Requirements for R-12, R-134a systems, diagnosis and service. A study of advanced electrical systems found on late-model vehicles.

## Course learning outcomes

1. Describe the operation of automotive air conditioning and heating systems.
2. Diagnose and repair various air conditioning and heating systems.
3. Apply specific safety practices while working on heating and air conditioning systems.
4. Perform recovery and handling of R-12, R-134a, and R1234yf refrigerants.
5. Perform a retrofit of a R-12 system to a R-134a system.
6. Communicate technical information verbally and in writing.
7. Describe and practice safety procedures while working in an automotive shop environment.

## Content outline

1. Pressure test radiator and cap
2. Inspect cooling system
3. Change coolant
4. Test thermostat operation
5. Heater System Inspection
6. Remove and replace drive belt
7. A/C Component Identification 1
8. A/C Component Identification 2
9. A/C Temperature Touch Lab
10. A/C system temperature refrigerant state
11. Test condenser performance
12. Identify system refrigerant
13. Refrigerant leak detection
14. Recover refrigerant
15. System evacuation
16. System recharge with gauge set
17. System recharge with service unit
18. Electrical tests
19. A/C performance test
20. HVAC diagnosis
21. Climate control testing service

22. Scan tool diagnostics
23. Automatic/semiautomatic temperature control
24. System diagnosis
25. Determine need for refrigerant filter
26. Compressor clutch diagnosis

## Required materials

Required textbook and special gear, see syllabus for details.