

Automotive Technology V

Course Title: Automotive Technology V

Course Description: This course covers theory of operation and diagnosis of climate control systems. Advanced on board diagnostic routines will be emphasized. Additional topics will be added in the future.

Equivalent CCNS Courses:

ASE 264

Automotive Technology Enduring Understandings:

- Inquiry guides problem solving
- Parts impact whole
- Analysis of evidence influences performance

World Class Outcomes for Automotive Technology I:

- Investigate underlying academic principles and their applications across multiple disciplines
- Explore the applications of numerous technologies
- Collect and evaluate data to accurately analyze systems
- Apply appropriate technology to perform tasks accurately
- Perform tasks independently in a set time period, with minimal instruction.
- Perform tasks with 100% accuracy recognizing that no acceptable margin of error exists.
- Develop analysis driven concern resolutions
- Clearly communicate procedures both verbally and with written documentation.

Introduction to Automotive Heating and Air Conditioning, CCNS and NATEF Tasks

1. Research applicable vehicle and service information, such as internal engine operation, vehicle service history, service precautions, and technical service bulletins. FEMP.01.02.j, FEMP.01.02.k, FEMP.01.02.l, RWC10-GR.12-S.2-GLE.2-EO.b

2. Inspect and replace A/C drive belts, pulleys, and tensioner's; Determine necessary action. FEMP.01.02.d FEMP.01.02.e

3. Identify hybrid vehicle A/C system electrical circuits and service/ safety precautions. FEMP.01.02.d FEMP.01.02.e

4. Inspect A/c condenser for airflow restrictions; determine necessary action. FEMP.01.02.d
FEMP.01.02.e
 5. Inspect engine cooling and heating system hoses; determine necessary action. FEMP.01.02.d
FEMP.01.02.e
 6. Inspect A/C – heating ducts, doors, hoses, cabin filters, and outlets; determine necessary action.
FEMP.01.02.d FEMP.01.02.e
 7. Identify the source of A/C system odors. FEMP.01.02.d FEMP.01.02.e
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NATEF, National Automotive Technicians Education Foundation

CDE Standards Descriptors

FEMP.01.02.c Execute repair plans for facilities and mobile equipment.

FEMP.01.02.d Understand the value and necessity of practicing personal and occupational safety and protecting the environment by using materials and processes in accordance with manufacturer and industry standards.

FEMP.01.02.e Understand the safe and appropriate use of tools, equipment and work process.

FEMP.01.02.f Understand scientific principles in relation to chemical, mechanical and physical functions for various engine and vehicle systems.

FEMP.01.02.g Perform and document maintenance procedures in accordance with the recommendations of the manufacturer.

FEMP.01.02.h Understand the application, operation, maintenance, and diagnosis of engines, including but not limited to two- and four-stroke and supporting subsystems.

FEMP.01.02.j Perform and document repair procedures in accordance with manufacturer recommendations and industry standards.

FEMP.01.02.k Demonstrate the effective use of computer based equipment to control electromechanical devices commonly used in diagnostic analysis.

FEMP.01.02.l Use technical vocabulary, technical reports and manuals, electronic systems and related technical data resources to determine repairs and estimates.

MA10-GR.HS-S.2-GLE.4-EO.a Create equations that describe numbers or relationships. (CCSS: A-CED)

MA10-GR.HS-S.1-GLE.2-EO.a.iii Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. (CCSS: N-Q.3)

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MA10-GR.HS-S.2-GLE.1-EO.b Interpret functions that arise in applications in terms of the context. (CCSS: F-IF)

RWC10-GR.12-S.2-GLE.2-EO.b Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem. (CCSS: RI.11-12.7)

SC09-GR.HS-S.1-GLE.2-EO.a Develop, communicate, and justify an evidence-based scientific explanation supporting the current model of an atom

SC09-GR.HS-S.1-GLE.2-EO.b Gather, analyze and interpret data on chemical and physical properties of elements such as density, melting point, boiling point, and conductivity

SC09-GR.HS-S.1-GLE.3-EO.d Examine, evaluate, question, and ethically use information from a variety of sources and media to investigate the conservation of mass and energy

SC09-GR.HS-S.1-GLE.5-EO.c Use direct and indirect evidence to develop predictions of the types of energy associated with objects