DEPT: Automotive          COURSE No: AUTO 1120

COURSE TITLE: Air Conditioning

COURSE DESCRIPTION:
Identify and define the theory, principles, diagnosis, testing, and repairs of the air conditioning and heater systems operations.
3 Cr (1 lecture, 2 lab, 0 other)

AUDIENCE: Auto students

FULFILLS MN TRANSFER CURRICULUM AREA(S) (Leave blank if not applicable)
Area : by meeting the following competencies:
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PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE: NA

LENGTH OF COURSE: 20 days @ 4 hours a day = 80 hours

THIS COURSE IS USUALLY OFFERED:
Every year X Every other year
Fall Spring X Summer Undetermined

Four goals are emphasized in course at Minnesota West Community & Technical College:

ACADEMIC CONTENT: The goal of this course is to enable the student to properly service automotive air conditioning systems. Included will be diagnosis of problems, system theory and repair, customer satisfaction, and safety.

THINKING SKILLS:
A. To use different situations to diagnose & troubleshoot problems in air conditioning system.
B. To be able to think through how all of the parts of the air conditioning system work

COMMUNICATIONS SKILLS:
A. Participation in class discussion.
B. Complete written reports and assignments
C. To improve oral communications skills through class presentations

**HUMAN DIVERSITY:**
A. To understand the roles of the technician in communicating with a diverse population.
B. To work effectively in teams comprised of diverse backgrounds.
C. To express personal philosophies on diverse issues.

**TOPICS TO BE COVERED:**
1. Air conditioning fundamentals
2. Air conditioning systems
3. Testing and repairing of air conditioning systems.
4. Diagnose computer controlled A/C systems

**COURSE LEARNING OUTCOMES:** To gain overall knowledge of how the A/C system works and how dual climate control functions in current automotive vehicle technology. The required outcomes follow the Auto Service Technician (AST) model of the National Automotive Technical Education Foundation (NATEF) certification program.

**LEARNING/TEACHING TECHNIQUES USED IN THIS COURSE:**
X Collaborative Learning X Problem Solving
Student Presentations X Interactive Lectures
Creative Projects Individual Coaching
X Lecture X Films/Videos/Slides
X Demonstrations X Other (describe below)
X Lab Periodical Research and Summary

**ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:**
X Reading X Tests X Individual Projects
X Oral Presentations X Worksheets X Collaborative Projects
X Textbook Problem X Papers Portfolio
EXPECTED STUDENT LEARNING OUTCOMES:

After completing this class, students should be able to:

1. Identify abnormal operating noises in the A/C system
2. Inspect and replace A/C compressor drive belts, pulleys, and tensioners; determine necessary action.
3. Determine recommended oil capacity for system application
4. Diagnose A/C compressor clutch control systems; determine necessary action
5. Diagnose malfunctions in the vacuum, mechanical, and electrical components

For every task in Heating and Air Conditioning, the following safety requirement must be strictly enforced:

Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations. "This course will cover the characteristics of hazardous wastes and its safe handling, storage, and disposal."

Veteran Services: Minnesota West is dedicated to assisting veterans and eligible family members in achieving their educational goals efficiently. Active duty and reserve/guard military members should advise their instructor of all regularly scheduled military appointments and duties that conflict with scheduled course requirements. Instructors will make every effort to work with the student to identify adjusted timelines. If you are a veteran, please contact the Minnesota West Veterans Service Office.

To receive reasonable accommodations for a documented disability, please contact the campus Student Services Advisor or campus Disability Coordinator as arrangements must be made in advance. In addition, students are encouraged to notify their instructor.

This document is available in alternative formats to individuals with disabilities by contacting the Student Services Advisor or by calling 800-658-2330 or Minnesota Relay Service at 800-627-3529 or by using your preferred relay service.