Faculty are required to have the outline submitted to the Academic Affairs Office. The course outline is the form used for approval of new courses by the College-wide Curriculum Committee.

DEPT: Automotive  
COURSE NO: AUTO 1126

COURSE TITLE: Steering/Suspension/Alignment

CATALOG DESCRIPTION: Identify the necessary skills to diagnose and repair steering and suspension systems. This course teaches suspension systems using leaf springs, coil springs, MacPherson struts, torsion bars and wheel balance. It also covers the principles of operation, disassembly, checks and adjustments of power and manual steering gears, and manual and power rack and pinion systems. Also taught are the procedures required for checking and adjusting wheel alignment.

3 credits (1 lecture, 2 lab) 80 hours

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:** Perform the necessary skills to diagnose and repair steering and suspension systems. This course teaches suspension systems using leaf springs, coil springs, MacPherson struts, torsion bars and wheel balance. It also covers the principles of operation, disassembly, checks and adjustments of power and manual steering gears, and manual and power rack and pinion systems. Also taught are the procedures required for checking and adjusting wheel alignment.

**THINKING SKILLS:**

A. To use different situations to diagnose & troubleshoot problems in power steering systems.

B. To be able to think through how all of the internal parts of the power steering 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. Steering system operation.

2. Diagnosis and repair of steering systems.

3. Hydraulic assisted steering.
4. Diagnosis and repair of hydraulic assisted steering systems

5. Suspension system operation.

6. Diagnosis and repair of suspension systems.

7. Alignment geometry.

8. Performing basic alignments.

9. Tire and wheel relationship to steering and alignment.

10. Tire maintenance and repair.

LIST OF EXPECTED COURSE OUTCOMES:

After completing this course, the student should have the knowledge and application to:

1. Perform a basic alignment.

2. Replace common hydraulic steering components.

3. Replace common steering components.

4. Replace common suspension components.

5. Repair and replace tires.

6. Diagnose and repair basic steering problems.

7. Diagnose and repair basic suspension problems.

8. 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 the course are:

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

X Group Problems Term Paper

X Other (Periodical Research and Summary)

EXPECTED STUDENT LEARNING OUTCOMES:

After completing this class, students should be able to:

1. Perform a basic alignment.

2. Replace common hydraulic steering components.

3. Replace common steering components.

4. Replace common suspension components.

5. Repair and replace tires.

6. Diagnose and repair basic steering problems.

7. Diagnose and repair basic suspension problems.

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.

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