SOUTHEAST COMMUNITY COLLEGE
TRANSPORTATION OCCUPATIONS
AUTOMOTIVE SERVICE EDUCATIONAL PROGRAM (ASEP)
COURSE SYLLABUS
January 2, 2020

Syllabus Statements

I. CATALOG DESCRIPTION

Course Number: ASEP 1242
Course Title: GM Chassis
Prerequisite: ASEP1161

Catalog Description: This course covers GM Base Brake, Anti-Lock and Traction Control Systems. Steering, Suspension and Chassis Control Systems, Four-Wheel Alignment, Front and Rear Axles and AWD/4WD Systems.

Credit Hours: 6.0
Class Hours: 30
Lab Hours: 180
Total Contact Hours: 210

II. COURSE OBJECTIVES: *Course will:*

A. Discuss theory, operation, diagnosis and service of GM Base Brake Systems.
B. Discuss theory, operation, diagnosis and service of GM Antilock Brake and Traction Control Systems.
C. Discuss theory, operation, diagnosis and service of GM Hydraulic and Electronic Power Steering Systems.
D. Discuss theory, operation, diagnosis and service of GM Suspension Systems.
E. Discuss theory, operation and diagnosis and service of General Motors Chassis Control Systems including: Stability Enhancement Systems, Automatic Level Ride Systems.
F. Theory, inspection and techniques for Four-Wheel Alignment.
G. Discuss theory, operation, diagnosis and service of GM Rear Axle Assemblies.
H. Discuss theory, operation, diagnosis and service of GM Front Axles and CV Shafts.
I. Discuss theory, operation, diagnosis and service of GM Truck AWD/4WD Systems.
J. Discuss theory, operation, diagnosis and service of GM Passenger Car AWD/4WD Systems.
K. Introduce and identify types of General Motors passenger car AWD systems.
L. Discuss theory, operation, diagnosis and service of General Motors passenger car AWD systems.
M. Introduce and Identify types of General Motors truck AWD and 4WD systems.
N. Discuss theory, operation, diagnosis and service of General Motors truck AWD and 4WD systems.
O. Discuss theory and operation, and powerflow of planetary gearsets, and synchronizer assemblies used in General Motors transfer cases.
P. Introduce and identify types of GM transfer case assemblies.
Q. Discuss theory, operation, diagnosis and service of GM transfer case assemblies.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

A. STUDENT LEARNING OUTCOMES: *Student will be able to:*

1. Perform lab exercises in a safe and workmanlike manner according to General Motor Service Information procedures.
2. Recall theory of operation and diagnostic principles for GM Base Brake Systems.
3. Perform GM Base Brake System component service including: master cylinder, brake caliper, brake hoses and pipes, park brake systems and brake bleeding.
4. Recall theory of operation and diagnostic principles for Anti-Lock Brake and Traction Control Systems.
5. Analyze and diagnose GM ABS/TCS systems using GDS2 and GM Service Information.
6. Recall ABS/TCS component replacement procedures using GM Service Information.
7. Recall theory of operation and diagnostic principles for General Motors hydraulic and electronic power steering (EPS) systems.
8. Analyze and diagnose General Motors hydraulic and electronic power steering (EPS) systems using GDS2 and GM Service Information.
9. Recall theory of operation, diagnostic principles and service procedures for GM Suspension Systems.
10. Recall theory of operation, diagnostic principles and service procedures for GM Chassis Control Systems.
11. Analyze and diagnose General Motors Chassis Control Systems using GDS2 and GM Service Information.
12. Explain theory, operation, diagnosis and repair of GM suspension systems. Perform inspections and analyze findings to determine needed repairs.
13. Explain theory, techniques and procedures of four-wheel alignment. Perform alignment inspections, analyze findings and determine needed adjustments and parts to restore vehicle ride and handling for GM vehicles.
14. Recall theory of operation and diagnostic principles for GM propshafts and u-joints.
15. Perform propshaft assembly measurements, inspections, removal, installation and u-joint replacement according the General Motors Service Information.
16. Explain theory of operation and diagnostic principles for GM rear axles, limited slip and locking differentials.
17. Perform pre-disassembly checks, disassembly, cleaning, inspection and component replacement of GM rear axles, limited slip and locking differentials.
18. Perform measurements for proper set-up and reassembly of GM rear axles, limited slip and locking differentials.
19. Identify General Motors truck front axle assemblies.
20. Perform pre-disassembly checks, disassembly, cleaning, inspection, and reassembly of General Motors front axle assemblies. Verify proper setup.
21. Perform, disassembly, cleaning, inspection and reassembly of General Motors constant velocity shaft assemblies.
22. Recall theory of operation, powerflow, and diagnostic principles for General Motors passenger car AWD systems.
23. Analyze and diagnose General Motors passenger car AWD systems using GDS2 and GM Service Information.
24. Recall theory of operation, powerflow, and diagnostic principles for General Motors truck AWD and 4WD systems.

25. Recall theory of operation, powerflow and diagnostic principles of planetary gearsets, and synchronizers used in General Motors transfer cases.
26. Analyze and diagnose General Motors truck AWD and 4WD systems using GDS2 and GM Service Information.
27. Identify General Motors truck and passenger car AWD and 4WD components.
28. Perform disassembly, cleaning, inspection, and reassembly of General Motors AWD and 4WD transfer cases.
29. Recognize the importance of verifying the validity of the repair to ensure customer satisfaction.
30. Recognize the ethical responsibilities of proper automotive service in these areas and their responsibility in society for performing proper diagnosis and effective repair.

B. GENERAL EDUCATION LEARNING OUTCOMES:

GELO #3: Critical Thinking & Problem Solving

Outcome:

1. Collect, identify, interpret and analyze data.

IV. CONTENT/UNIT OF INSTRUCTION

A. GM base brake systems
B. GM ABS and TCS systems
C. GM hydraulic and electronic power steering systems
D. GM suspension systems
E. GM chassis control systems
F. Four-wheel alignment principles
G. GM rear axles
H. GM front axles and CV shafts
I. Passenger car AWD systems
J. Truck AWD/4WD systems
K. GM transfer cases

V. INSTRUCTIONAL MATERIALS

The Course Information Document lists the current text(s) required for this class. The list is also available in the campus bookstore. The Course Information Document also lists the tools/equipment or other supplies required for this class.

VI. METHODS OF PRESENTATION/INSTRUCTION

A. Methods of presentation typically include a combination of the following:
1. Lecture
2. Small and large group discussion
3. Video presentation
4. Demonstrations
5. Project boards
6. Handouts
7. Observations
8. Assigned lab projects
9. Online information
10. Field trips

VII. METHODS OF EVALUATION

A. Methods of evaluation typically include a combination of the following:

1. Notebook (if required)
2. Quizzes
3. Tests
4. Lab grades
5. Attendance/class conduct

Letter grades will be based on the SCC Standard Grade Scale Policy. **Note:** See Course Information Document for specific details on how the course grades will be calculated.

VIII. SPECIFIC COURSE REQUIREMENTS

A. Student must:

1. Complete all tests, projects, assignments, and notebook (if required).
2. Earn a final grade of 70% (2.0) or higher.

B. Attendance:

1. Student must follow the Attendance Policy as stated in the college student handbook, automotive lab and classroom policies handbook or Course Information Document.

C. Shop safety rules will be followed.

D. Any additional course requirements as stipulated by the Instructor.