



**COWLEY COLLEGE
& Area Vocational Technical School**

COURSE PROCEDURE FOR

**SUSPENSION/STEERING SYSTEMS I
AMS3136 3 Credit Hours**

Student Level:

This course is open to students on the college level in either the freshman or sophomore year and to area high school vocational students.

Catalog Description:

AMS 3136 - SUSPENSION/STEERING SYSTEMS I (3 hrs)

This course will enable the student to gain basic understanding and hands on experience utilizing industry standard procedures in the diagnosing and repair of Suspension and Steering Systems. Topics presented throughout the course cover; steering systems, suspension systems, wheels, tires, and alignment concerns.

Prerequisites:

None

Controlling Purpose:

This course is designed to help the student increase their knowledge concerning entry-level skills contained in the sequenced competencies, for success, after graduation from the Automotive Technology Program.

Learner Outcomes:

Upon completion of this course the student will be able to analyze and diagnose related problems specific to automotive suspension/steering systems.

Units Outcomes and Criterion Based Evaluation Key for Core Content:

The following defines the minimum core content not including the final examination period. Instructors may add other content as time allows.

Evaluation Key:

- A = All major and minor goals have been achieved and the achievement level is considerably above the minimum required for doing more advanced work in the same field.
- B = All major goals have been achieved, but the student has failed to achieve some of the less important goals. However, the student has progressed to the point where the goals of work at the next level can be easily achieved.

- C = All major goals have been achieved, but many of the minor goals have not been achieved. In this grade range, the minimum level of proficiency represents a person who has achieved the major goals to the minimum amount of preparation necessary for taking more advanced work in the same field, but without any major handicap of inadequacy in his background.
- D = A few of the major goals have been achieved, but the student's achievement is so limited that he is not well prepared to work at a more advanced level in the same field.
- F = Failing, will be computed in GPA and hours attempted.
- N = No instruction or training in this area.

UNIT 1: General Suspension and Steering Systems Diagnosis						
Outcomes: The student will gain an understanding of general steering and suspension.						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Identify and interpret suspension and steering concern; determine necessary action.
						Research applicable vehicle and service information, such as suspension and steering system operation, vehicle service history, service precautions, and technical service bulletins.

UNIT 2: Steering Systems Diagnosis and Repair

Outcomes: The student will demonstrate an understanding of diagnosis of SRS systems and steering column repair.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Disable and enable supplement restraint systems (SRS).
						Inspect rack and pinion steering gear inner tie rod ends (sockets) and bellows boots; replace as needed.
						Determine proper power steering fluid type; inspect fluid level and condition.
						Flush, fill, and bleed power steering system.
						Inspect for power steering fluid leakage; determine necessary action.
						Remove, inspect, replace, and adjust power steering pump drive belt.
						Inspect and replace power steering hoses and fittings.
						Inspect and replace pitman arm, relay (centerlink/intermediate) rod, idler arm and mountings, and steering linkage damper.
						Inspect tie rod ends (sockets), tie rod sleeves, and clamps.
						Inspect upper and lower control arms, bushings, and shafts.
						Inspect and replace rebound and jounce bumpers.
						Inspect track bar, strut rods/radius arms, and related mounts and bushings.

UNIT 3: Front Suspension

Outcomes: The student will gain knowledge of front suspension and common repair procedures.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Inspect upper and lower ball joints (with or without wear indicators).
						Inspect suspension system coil springs and spring insulators (silencers).
						Inspect suspension system torsion bars and mounts.
						Inspect and replace front stabilizer bar (sway bar) bushings, brackets, and links.
						Inspect strut cartridge or assembly.
						Inspect front strut bearing and mount.
						Inspect rear suspension system lateral links/arms (track bars), control (trailing) arms.

UNIT 4: Rear Suspension

Outcomes: The student will gain the knowledge of rear suspension and common repair procedures.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Inspect rear suspension system lateral links/arms (track bars), control (trailing) arms.
						Inspect rear suspension system leaf spring(s), spring insulators (silencers), shackles, brackets, bushings, center pins/bolts, and mounts.
						Inspect, remove, and replace shock absorbers; inspect mounts and bushings

UNIT 5: Miscellaneous Service

Outcomes: The student will gain the knowledge to inspect, service, and replace shocks and strut-assemblies.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Identify hybrid vehicle power steering system electrical circuits and safety precautions.
						Inspect electric power-assisted steering.
						Describe the function of the power steering pressure switch.
						Perform pre-alignment inspection and measure vehicle ride height; determine necessary action.
						Inspect tire condition; identify tire wear patterns; check for correct size and application (load and speed ratings) and adjust air pressure; determine necessary action.
						Rotate tires according to manufacturer's recommendations.
						Dismount, inspect, and remount tire on wheel; balance wheel and tire assembly (static and dynamic).
						Dismount, inspect, and remount tire on wheel equipped with tire pressure monitoring system sensor.
						Inspect tire and wheel assembly for air loss; perform necessary action.
						Repair tire using internal patch.
						Identify and test tire pressure monitoring systems (indirect and direct) for operation; verify operation of instrument panel lamps.
						Demonstrate knowledge of steps required to remove and replace sensors in a tire pressure monitoring system.

Projects Required:

As assigned

Textbook:

Contact Bookstore for current textbook.

Materials/Equipment Required:

Students are required to furnish their own Personal Protection Equipment i.e. Safety Glasses.

Attendance Policy:

Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:

The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:

Based on classroom occupancy

Course Timeframe:

The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

Refer to the following policies:

[402.00 Academic Code of Conduct](#)

[263.00 Student Appeal of Course Grades](#)

[403.00 Student Code of Conduct](#)

Disability Services Program:

Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If a student has a disability, which may impact work in this class which requires accommodations, contact the Disability Services Coordinator.