**BARTON COMMUNITY COLLEGE**

**COURSE SYLLABUS**

# **GENERAL COURSE INFORMATION**

Course Number: AUTO 1106

Course Title: Steering and Suspension I

Credit Hours: 3

Prerequisite: None

Division/Discipline: Workforce Training and Economic Development/Automotive Technology

Course Description: In this course students will explore suspension and steering theory. They will learn how to properly inspect steering and suspension components and preform light duty repairs and/or recommend more complicated service procedures.

 Kansas Board of Regents Program Alignment Date: March 10, 2014

1. **INSTRUCTOR INFORMATION**

# **COLLEGE POLICIES**

Students and faculty of Barton Community College constitute a special community engaged in the process of education. The College assumes that its students and faculty will demonstrate a code of personal honor that is based upon courtesy, integrity, common sense, and respect for others both within and outside the classroom.

Plagiarism on any academic endeavors at Barton Community College will not be tolerated. The student is responsible for learning the rules of, and avoiding instances of, intentional or unintentional plagiarism. Information about academic integrity is located in the Student Handbook.

The College reserves the right to suspend a student for conduct that is determined to be detrimental to the College educational endeavors as outlined in the College Catalog, Student Handbook, and College Policy & Procedure Manual. (Most up-to-date documents are available on the College webpage).

Any student seeking an accommodation under the provisions of the Americans with Disability Act (ADA) is to notify Student Support Services via email at disabilityservices@bartonccc.edu.

# **COURSE AS VIEWED IN THE TOTAL CURRICULUM**

Steering and Suspension I is a Kansas aligned course and is one of eight (National Automotive Technicians Education Foundation) certified areas of automotive repair.

# **ASSESSMENT OF STUDENT LEARNING**

Barton Community College is committed to the assessment of student learning and to quality education. Assessment activities provide a means to develop an understanding of how students learn, what they know, and what they can do with their knowledge. Results from these various activities guide Barton, as a learning college, in finding ways to improve student learning.

Students completing this course will have firsthand insight into the complexities of working with automotive steering and suspension systems.

Course Outcomes, Competencies, and Supplemental Competencies:

1. Demonstrate a knowledge of the following general vehicle information
	1. Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins.
	2. Disable and enable supplemental restraint system (SRS).
2. Analyze, diagnose and repair suspension and steering services
3. Inspect rack and pinion steering gear inner tie rod ends (sockets) and bellows boots.
4. Determine proper power steering fluid type; inspect fluid level and condition.
5. Flush, fill, and bleed power steering system.
6. Inspect for power steering fluid leakage; determine necessary action.
7. Remove, inspect, replace and adjust power steering pump drive belt.
8. Inspect and replace power steering hoses and fittings.
9. Inspect pitman arm, relay (centerlink/intermediate) rod, idler arm and mountings, and steering linkage damper.
10. Inspect tie rod ends (sockets), tie rod sleeves, and clamps.
11. Inspect upper and lower control arms, bushings, shafts.
12. Inspect and replace rebound and jounce bumpers.
13. Inspect track bar, strut rods/radius arms, and related mounts and bushings.
14. Inspect upper and lower ball joints (with or without wear indicators).
15. Inspect suspension system coil springs and spring insulators (silencers).
16. Inspect suspension system torsion bars and mounts.
17. Inspect and replace front stabilizer bar (sway bar) bushings, brackets, and links.
18. Inspect strut cartridge or assembly.
19. Inspect front strut bearing and mount.
20. Inspect rear suspension system lateral links/arms (track bars) control (trailing) arms.
21. Inspect rear suspension system leaf spring(s), spring insulators (silencers), shackles, brackets, bushings, center pins/bolts, and mounts.
22. Inspect, remove, and replace shock absorbers; inspect mounts and bushings.
23. Inspect electric power-assisted steering.
24. Identify hybrid vehicle power steering system electrical circuits and safety precautions.
25. Describe the function of the power steering pressure switch.
26. Analyze, diagnose, repair and adjust wheel alignment
27. Perform pre-alignment inspection and measure vehicle ride height
28. Determine necessary action.
29. Perform repairs as necessary
30. Analyze, diagnose, repair wheels and tires
31. Inspect tire condition; identify tire wear patterns; check for correct size and application (load and speed ratings) and adjust air pressure: determine necessary action
32. Rotate tires according to manufacturer’s recommendations.
33. Dismount, inspect, and remount tire on wheel; balance wheel and tire assembly (static and dynamic).
34. Dismount, inspect, and remount tire on wheel equipped with tire pressure monitoring system sensor.
35. Inspect tire and wheel assembly for air loss; perform necessary action.
36. Repair tire using internal patch.
37. Identify and test tire pressure monitoring systems (indirect and direct) for operation; verify operation of instrument panel lamps.
38. Demonstrate knowledge of steps required to remove and replace sensors in a tire pressure monitoring system.
39. **INSTRUCTOR'S EXPECTATIONS OF STUDENTS IN CLASS**

# **TEXTBOOKS AND OTHER REQUIRED MATERIALS**

1. **REFERENCES**

# **METHODS OF INSTRUCTION AND EVALUATION**

# **ATTENDANCE REQUIREMENTS**

# **COURSE OUTLINE**