

COURSE SYLLABUS

AUTOMOTIVE Suspension & Steering AUTO-012A

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REQUIRED TEXT

- Johanson: Stockel. (2015). Auto Suspension and Steering (4TH/e). Tinley Park Goodheart-Wilcox. (Classroom and Shop Manual)
- Classroom and Shop Manual ISBN# 978-1-61960-731-6, ISBN# 978-1-61960-735-4.
- Modern Automotive Technology: NATEF Standards Job Sheets for Performance-Based Learning; Chris Johanson. ISBN: 978-1-63126-378-1
- Electude Online Learning.

COURSE DESCRIPTION

This course provides theory and hands-on experience in automotive steering and suspension systems including: theory of operation, service, diagnosis and repair. The course includes the following topics: front and rear suspension types, steering systems, four-wheel alignment, shocks, struts, tires and wheels.

STUDENT LEARNING OUTCOMES

1. Demonstrate knowledge of shop safety.
2. Diagnose and repair intermediate to advanced level steering & suspension system malfunctions.
3. Diagnose and repair intermediate to advanced level 4-wheel alignment concerns.
4. Display teamwork.
5. Demonstrate proficiency in referencing service information and documenting repairs.
6. Inspect and perform maintenance on steering & suspension systems.
7. Pass Automotive Service Excellence (ASE) Steering & Suspension student testing certification.

COURSE GRADING

The grade you will receive will be based on exams, homework, notebook, project, attendance and participation:

Project	10%
Lab Activities	20%
Homework	20%
Participation	15%
Exams	25%
Industry Web Training	10%

Grading is a straight scale, no curve.

EXAMS

Timed exams will be given for each main section during the course. A hands-on portion may or may not be given; be prepared to work in the shop for a hands-on portion of any exam.

LAB ACTIVITIES

No cell phones, backpacks, book bags etc. are allowed in the shop during lab time. You must leave your backpack, etc. in the classroom. Safety glasses are required for lab activities.

The lab activities follow the National Automotive Technicians Education Foundation (NATEF) task list prescribed for this course. All required NATEF worksheets must be completed and turned in and the Lab Activities Tracking Sheets must be properly completed for lab activity credit. All Lab Activity Tracking Sheets must be signed off by the instructor immediately after the completion of a task or no credit will be given.

SAFETY

Safety is paramount! Never perform any unsafe shop practice. Never operate any equipment or use any tool unless you have gone over the safety practices related to that particular piece of equipment. Immediately inform the instructor or shop foreman of any unsafe conditions in the classroom, in the shop or with a vehicle. Do not allow your fellow students to perform any unsafe shop practices. Shop safety practices and material use will be reviewed prior to going into the shop. Points covered will include tool safety, chemicals, and potential hazards when working on a vehicle. **SAFETY VIOLATIONS WILL NOT BE TOLERATED.** Safety violations may result in your grade being lowered or removal from the lab in order to review safety protocol.

INDUSTRY WEB TRAINING

The program is certified by a number of national and industry organizations i.e. National Automotive Training Education Foundation (NATEF), National Coalition of Certification Centers (NC3), Mopar Career Automotive Program (CAP), Ford Automotive Career Exploration (ACE). These and other industry organizations may offer web training that will be required in this course.

Mopar (CAP) requirements for Auto-012A

- 0420708 Steering and Suspension Service

Ford (ACE) requirements for Auto-012A

- Steering and Suspension STST 33 (10 Courses)

Note- Students are required to complete either Mopar (CAP) or Ford (ACE) Industry Web Trainings.

PROFESSIONAL ATTITUDE & WORKMANSHIP

Be respectful of others and their vehicles. Always use floor mats, seat covers and fender covers. When servicing, troubleshooting or repairing a vehicle you are expected to make quality repairs returning the vehicle to factory specifications. Carefully and completely perform each task. This includes verifying that the repair has been made and the vehicle is safe to drive and in good working order, cleaning up your work area and returning any tools and equipment to their proper location(s).

TOOLS & EQUIPMENT

You are expected to treat tools and equipment with the highest level of professionalism. These items are expensive and must be used by many students each semester. Any abuse, misuse or lack of care for tools or equipment will result in the loss of use. Regarding tool & equipment usage, you are expected to:

- Use them in accordance with safety guidelines
- Do inventory of the tool box being used prior to use
- Use them only for designed purposes
- Return them to assigned location in shop, tool room or boxes at the end of each lab session (they are to be clean and properly put back in their case)
- Wash shop vehicles, as needed

SHOP CLOTHING/ FOOD & BEVERAGES

Your apparel should be professional. You are expected to wear appropriate shop clothing. When working in the shop, you **must** wear safety glasses, work boots/shoes, and a shop type shirt and shorts/pants. For safety, all jewelry must be removed and long hair must be tied back.

HOMEWORK/RESEARCH PROJECT

Homework will be assigned, as needed. The project for this course will be a research project. **The project counts toward 10% of your grade.**

AGENDA

For each chapter indicated below you are required to:

Read the chapter material from the classroom and shop manuals; ALL questions from the classroom manual & shop manual.

- RO's, SP2, instructor led demos
- Shop Safety and Environmental Protection
- Special Service Tools and Equipment
- Basic Suspension and Steering Systems Operation
- Front Suspension Systems
- Front Suspension System Service
- Rear Suspension Systems
- Rear Suspension System Service
- Steering Systems
- Steering Linkage and Manual Steering Gear Service
- Power Steering and Four Wheel Steering Service
- Driveline and Wheel Components
- Driveline and Wheel Service
- Electronic Suspension and Steering Systems
- Electronic Suspension and Steering Service
- Wheel Alignment Principles
- Wheel Alignment Procedures
- Suspension and Steering Troubleshooting
- ASE Certification
- Career Preparation

**Agenda is subject to change as deemed necessary by the instructor.*