SOUTHWEST TECH

SOUTHWEST TECHNICAL COLLEGE

TEAU 1400 - Suspension and Steering (4 Credits)

Course Description

The Suspension and Steering course teaches theory and hands-on instruction on automotive suspension and steering systems while following the program standards set forth by Automotive Service Excellence Education Foundation at the master level.

Course Objectives

- Maintain vehicle safety through safe suspension and steering maintenance and repairs.
- Identify and repair automotive steering and suspension systems.
- Identify the issues with and perform an automotive wheel alignment.
- Identify and repair automotive wheels and tires

Course Outline

- Suspension and Steering Systems
- Tires, Wheels, Wheel Bearing, and Shocks/Struts
- Front and Rear Suspension Systems
- Steering Columns and Steering Linkages
- Four Wheel Alignment Primary Angles
- Four Wheel Alignment Diagnostic Angles
- Computer Controlled Suspension Systems
- Power Steering Pumps, Gears, and Components

Textbook & Reading Materials

Cengage Unlimited (1 year subscription), Cengage

Assignments and Assessments

Orientation
Orientation Acknowledgement
SWAM 1210 Syllabus
Remind Txt Group
Automotive Student OE Instructions
Right to Know Agreement
Student Information Sheet
INTERNET USAGE POLICY
Cleaning Expectations
Southwest Technical College Automotive Video Playlist
Student Tool and Equipment Use Waiver
Steering & Suspension Lab Check List
Cell Phone
Digital Lab Assignment Switch Instructions
Digital Lab Explanation
Module Breakdown
Module 1 Labs
Module 2 Labs
Module 3 Labs
Module 4 Labs
Module 5 Labs
Module 6 Labs
Module 7 Labs
Module 8 Labs
Cleaning Lab Module
Cleaning Lab 1
Cleaning Lab 2
Cleaning Lab 3
Cleaning Lab 4
Cleaning Lab S
Chapter 01 Reading: Classroom
Preparing the HEV for Service
General Hybrid Electric Vehicle Safety
Using a Scan Tool
Chapter 1 Multiple Choice and Tr,ue-False Quiz
Chapter 1 Fill in the Blank Questions
Chapter 01 Reading: Shop
Photo Sequence 1: Typical Procedure for Removing Air Bag Module
Chapter 1 Labeling Activity
Chapter 1 Video Questions
Chapter 1 ASE-Style Review Questions
Chapter 02 Reading: Classroom
Chapter 2-1 Video Questions
Chapter 2-2 Video Questions
Chapter 02 Reading: Shop
Chapter 2 Fill in the Blank Questions
Chapter 2 Multiple Choice and Tr,ue-False Quiz
Chapter 2 ASE-Style Review Questions
Lab 1 Research Vehicle Service Information
Lab 2 Identify and Interpret S&S Concerns
Lab 3 Dis.able and Enable SRS System
Lab 4 Det ermine Proper Power Steering Fluid
Lab 5 Inspect for Power Steering Leaks
Lab 6 Wheel Alignment
Lab 7 Dismount, Inspect, Remount Tire
Lab 8 Balance Tire and Wheel Assembly
End Module 1
Chapter 03 Reading: Classroom
Diagnose, Replace and Relearn TPMS
Identifying and Interpreting Tire Sidewall Information
Wheel and Tire Imbalance
Chapter 3 Multiple Choice and Tr,ue-False Quiz
Chapter 3 Fill in the Blank Questions
Chapter 3 Labeling Activity
Chapter 03 Reading: Shop
Photo Sequence 5: Typical Off-Car Wheel Balancing Procedure
Chapter 3 Video Questions
Chapter 3 ASE-Style Review Questions
Chapter 3 ASE Challenge Questions
Chapter 04 Reading: Classroom
Chapter 4 Multiple Choice and Tr,ue-False Quiz
Chapter 4 Fill in the Blank Questions
Chapter 4 Labeling Activity
Chapter 04 Reading: Shop
Photo Sequence 7: Typical Procedure for Measuring Front Wheel Hub End play
Chapter 4 Labeling Activity
Chapter 4 ASE-Style Review Questions
Chapter 4 ASE Challenge Questions
Chapter OS Reading: Classroom
Chapter 5 Multiple Choice and True-False Quiz
Chapter 5 Fill in the Blank Questions
Chapter 5 Labeling Activity
Chapter 5-1 Video Questions
Chapter 5-2 Video Questions
Chapter OS Reading: Shop
Chapter 5 Labeling Activity
Chapter 5 ASE-Style Review Questions
Chapter 5 ASE Challenge Questions
Lab 9 Inspect, Remove, and Install Struts
Lab 10 Inspect, Remove, and Replace Shock Absorbers
Lab 11 Remove, Inspect, and Service Wheel Bearings
Lab 12 Wheel Alignment
Lab 13 Inspect Tire Condition
Lab 14 Diagnose Tire & Wheel Vibration
Lab 15 Rotate Tires
Lab 16 Measure Wheel, Tire
Lab 17 Dismount, Inspect, Remount Tire
Lab 18 Dismount, Inspect, Remount Tire
Lab 19 Dismount, Inspect, Remount Tire
Lab 20 Inspect Tire and Wheel for Air Loss
Lab 21 Repair Tire Using an Internal Patch
Lab 22 Balance Tire and Wheel Assembly

Lab 23 Balance Tire and Wheel Assembly
Checkpoint Meeting Module 2
End Module 2
Chapter 06 Reading: Classroom
Chapter 6 Multiple Choice and Tr,ue-False Quiz
Chapter 6 Fill in the Blank Questions
Chapter 6 Labeling Activity
Chapter 6 Video Questions
Chapter 6 Labeling Activity
Chapter 06 Reading: Shop
Photo Sequence 11: Vertical Ball Joint Measurement
Chapter 6 ASE-Style Review Questions
Chapter 6 ASE Challenge Questions
Chapter 07 Reading: Classroom
Chapter 7 Multiple Choice and Tr,ue-False Quiz
Chapter 7 Fill in the Blank Questions
Chapter 7 Labeling Activity
Chapter 07 Reading: Shop
Photo Sequence 12: Typical Procedure for Measuring Front and Rear Riding Height
Chapter 7 Labeling Activity
Chapter 7 ASE-Style Review Questions
Chapter 7 ASE Challenge Questions
Lab 23a Diagnose Short/Long Arm System
Lab 24 Diagnose Strut Suspension System
Lab 25 Inspect, Remove, and Install Control Arms
Lab 26 Inspect, Remove and Install Strut Rods
Lab 27 Inspect, Remove and Install Ball Joints
Lab 28 Inspect, Remove and Install Steering Knuckle
Lab 29 Inspect, Remove, and Install SLA Coil Springs
Lab 30 Inspect, Remove, and Install Torsion Bars
Lab 31 Inspect, Remove, and Install Stabilizer Bars
Lab 32 Inspect, Remove and Install Track Bar
Lab 33 Inspect Rear Suspension System Leaf
Lab 34 Wheel Alignment
Lab 35 Balance Tire and Wheel Assembly
Checkpoint Meeting Module 3
End Module 3
Chapter 08 Reading: Classroom
Chapter 8 Multiple Choice and Tr,ue-False Quiz
Chapter 8 Fill in the Blank Questions
Chapter 8 Labeling Activity
Chapter 8 Video Questions
Chapter 08 Reading: Shop
Photo Sequence 14: Typical Procedure for Removing a Steering Wheel
Chapter 8 ASE-Style Review Questions
Chapter 8 ASE Challenge Questions
Lab 37 Remove and Replace Steering Wheel
Lab 38 Diagnose Steering Column Piroblems
Lab 39 Inspect Steering Shaft
Lab 40 Inspect and Replace Pitman Arm
Lab 41 Inspect and Replace Tie-Rod Ends
Lab 42 Test and Diagnose Electronic Steering Comp
Lab 43 Inspect Electric Power-assisted Steering
Lab 45 Diagnose Vehicle Wander
Lab 46 Wheel Alignment
Lab 47 Reset Steering Angle Sensor
Checkpoint Meeting Module 4
End Module4
Chapter 09 Reading: Classroom
Chapter 9 Multiple Choice and Tr,ue-False Quiz
Chapter 9 Fill in the Blank Questions
Chapter 9-2 Video Questions
Chapter 09 Reading: Shop
Performing a Prealignment Inspection
Understanding Alignment Angles
Chapter 9 ASE-Style Review Questions
Chapter 9 ASE Challenge Questions
Lab 48 Wheel Alignment
Lab 49 Wheel Alignment
Lab 50 Diagnose Tire Pull Problems
Lab 51 Dismount, Inspect, Remount Tire
Lab 52 Dismount, Inspect, Remount Tire
Lab 53 Balance Tire and Wheel Assembly
Checkpoint Meeting Module 5
End Module 5
Chapter 10 Reading: Classroom
Chapter 10 Multiple Choice and True-False Quiz
Chapter 10 Fill in the Blank Questions
Chapter 10 Labeling Activity
Chapter 10 Reading: Shop
Photo Sequence 20: Typical Procedure for Performing Frame Measurement, Plumb Bob Method
Chapter 10 ASE-Style Review Questions
Chapter 10 ASE Challenge Questions
Lab 55 Wheel Alignment
Lab 56Wheel Alignment
Lab 57 Wheel Alignment
Lab 58 Dismount , Inspect, Remount Tire
Lab 59 Dismount , Inspect, Remount Tire
Lab 60 Balance Tire and Wheel Assembly
Checkpoint Meeting Module 6
End Module 6
Chapter 11 Reading: Classroom
Chapter 11 Multiple Choice and True-False Quiz
Chapter 11 Fill in the Blank Questions
Chapter 11 Video Questions
Chapter 11 Labeling Activity
Chapter 11 Reading: Shop
Photo Sequence 23: Reading Scan Tool Data on an Electronic Suspension Control System
Chapter 11 ASE-Style Review Questions
Chapter 11 ASE Challenge Questions
Lab 61 Identify Hybrid Power Steering Components
Lab 62 Inspect , Remove, and Replace Shock Absorbers
Lab 63 Wheel Alignment
Lab 64 Dismount , Inspect, Remount Tire

Lab 65 Dismount , Inspect, Remount Tire
Lab 66 Balance Tire and Wheel Assembly
Lab 67 Identify, Test and calibrate a TPMS
Lab 68 Demonstrate Knowledge TPMS Diagnosis
Checkpoint Meeting Module 7
End Module 7
Chapter 12 Reading: Classroom
Hydraulic Power Steering Theory and Testing
How E PS Works
Chapter 12 Video Questions
Chapter 12 Multiple Choice and True-False Quiz
Chapter 12 Fill in the Blank Questions
Chapter 12 Reading: Shop
Chapter 12 Labeling Activity P/S Fluid Supply
Chapter 12 Labeling Activity Pulleys and Idlers
Chapter 12 ASE-Style Review Questions
Chapter 12 ASE Challenge Questions
Chapter 13 Reading: Classroom
Chapter 13 Multiple Choice and True-False Quiz
Chapter 13 Fill in the Blank Questions
Chapter 13 Labeling Activity
Chapter 13 Reading: Shop
Chapter 13 ASE-Style Review Questions
Chapter 13 ASE Challenge Questions
Chapter 14 Reading: Classroom
Chapter 14 Multiple Choice and True-False Quiz
Chapter 14 Fill in the Blank Questions
Chapter 14 Labeling Activity Steering Gear
Chapter 14 Labeling Activity Steering gear seals
Chapter 14 Reading: Shop
Photo Sequence 30: Pitman Sector Shaft Lash Adjustment
Chapter 14 ASE-Style Review Questions
Chapter 14 ASE Challenge Questions
Lab 69 Diagnose Power Steering Gear (Rec. Ball Gear)
Lab 70 Diagnose Power Steering Gear (Rack & Pinion)
Lab 71 Remove and Replace Rack & Pinion Gear
Lab 72 Inspect Rack & Pinion lnneririe-Rods
Lab 73 Flush, Fill, and Bleed Power Steering System
Lab 74 Remove, Inspect , and Replace Drive Belt
Lab 75 Remove and Reinstall Power Steering Pump
Lab 76 Remove and Reinstall Press-Fit Pulleys
Lab 77 Inspect and Replace Power Steering Hoses
Lab 78 Test power steering system pressure
Lab 79 Balance Tire and Wheel Assembly
Checkpoint Meeting Module 8
End Module 8
End of Course Survey
Suspension and Steering Competency Profile 2020
S&S Final Review
S&S Final Test

Subject to change. Please consult your Canvas course for the most current instructions and updates.

Classroom Hours

Mo, Tu, W, Th
8:00 AM - 12:00 PM
1:00 PM - 5:00 PM

Friday
8:00 AM - 12:00 PM

For a full list of course hours visit: Course Schedule

Instructor Contact Information

Cody Dawson — cdawson@stech.edu
Shad Esplin — sesplin@stech.edu
Dallin Robinson — drobinson@stech.edu
McKael Stapel — mstapel@stech.edu

Office Hours: By appointment

Email is the preferred method of communication; you will receive a response within 24 hours during regular business hours.

Canvas Information

Canvas is the where course content, grades, and communication will reside for this course.

- stech.instructure.com
- For Canvas passwords or any other computer-related technical support contact Student Services.
- For regular Hours and Weekdays call (435) 586 - 2899.
- For after Hours & Weekends call (435) 865 - 3929 (Leave a message if no response).

Course Policies

Class attendance is required, this is not an online course. Attendance is required during your scheduled time.
Grade Scale — A: 100 - 90%, B: 89 - 80%, F: 79% or lower.
Cell phones for many have become a distraction. When you are in class or lab we encourage you to keep your cell phones put away in a secure location. If you use ear buds we ask that you only use one so you can still hear the things going on around you. If you are using your phone for things other than school related items, instructors will ask you to put them away. Please follow the direction of your instructors. Those who have been asked to refrain from using your cell phone and fail to do so will be asked to meet with the Director of Transportation and student services will be notified.
The program is designed to provide the student with as much hands-on work as possible. In the automotive industry you may be required to lift heavy objects and stand for hours at a time to complete work required. Technicians deal with chemicals and materials which require caution, these will be identified in the Right to Know Agreement provided to you. You will also be required to use computers to track and complete work.

High School Power School Grades: Quarter student grades will be determined by student progress percentage. Faculty will use the higher percentage of either 1) quarter progress, or 2) cumulative progress for the current training plan year. The progress percentage will be used with the grading scale to determine the minimum grade. High School Grade Scale: The following grading scale will be used to determine a letter grade from the progress percentage:

- A : 94 - 100%
- A- : 90 - 93%
- B+ : 87 - 89%
- B : 83 - 86%
- B- : 80 - 82%
- C+ : 77 - 79%
- C : 73 - 76%
- C- : 70 - 72%
- D+ : 67 - 69%
- D : 63 - 66%
- D- : 60 - 62%
- F : 0 - 59%

Additional Information

InformaCast Statement: Southwest Tech uses InformaCast to ensure the safety and well-being of our students. In times of emergency, such as weather closures and delays, this app allows us to promptly deliver notifications directly to your mobile devices. To stay informed and receive real-time updates, we encourage all students to sign up for notifications. Your safety is our priority, and staying connected ensures a swift response to any unforeseen circumstances. More information and directions for signing up are available at: https://stech.edu/emergency-notifications/

Internet Acceptable Use Policy: The student is expected to review and follow the Southwest Technical College Internet Safety Policy at: https://stech.edu/students/policies/

Student Code of Conduct Policy: The student is expected to review and follow the Southwest Technical College Student Code of Conduct Policy at: https://stech.edu/students/policies/

Accommodations: Students with medical, psychological, learning, or other disabilities desiring accommodations or services under ADA, must contact the Student Services Office. Student Services determines eligibility for and authorizes the provision of these accommodations and services. Students must voluntarily disclose that they have a disability, request an accommodation, and provide documentation of their disability. Students with disabilities may apply for accommodations, based on an eligible disability, through the Student Services office located at 757 W. 800 S., Cedar City, UT 84720, and by phone at (435) 586-2899. No diagnostic services are currently available through Southwest Technical College.

Safety and Building Maintenance: The College has developed and follows a variety of plans to ensure the safe and effective operation of its facilities and programs. The following plans are available online:
1) Facilities Operations and Maintenance Plan; 2) Technical Infrastructure Plan; and 3) Health and Safety Plan.

Withdrawals and Refunds: Please refer to the Southwest Technical College Refund Policy at:
https://stech.edu/students/policies/

Any high school or adult student, who declares a technical training objective is eligible for admission at Southwest Technical College (Southwest Tech). Program-specific admissions requirements may exist and will be listed on the Southwest Tech website. A high school diploma or equivalent is not required for admission but is mandatory for students seeking Title IV Federal Financial Aid.

Non-Discriminatory Policy: Southwest Technical College affirms its commitment to promote the goals of fairness and equity in all aspects of the educational enterprise, and bases its policies on the idea of global human dignity.

Southwest Tech is committed to a policy of nondiscrimination. No otherwise qualified person may be excluded from participation in or be subjected to discrimination in any course, program or activity because of race, age, color, religion, sex, pregnancy, national origin or disability. Southwest Technical College does not discriminate on the basis of sex in the education programs or activities that it operates, as required by Title IX and 34 CFR part 106. The requirement not to discriminate in education programs or activities extends to admission and employment. Inquiries about Title IX and its regulations to STECH may be referred to the Title IX Coordinator, to the Department of Education, and/or to the Office for Civil rights.

If you believe you have experienced discrimination or harassment on our campus, please contact the Title IX Coordinator, Cory Estes: cestes@stech.edu, (435) 865-3938.

For special accommodations, please contact the ADA Coordinator, Cyndie Tracy: ctracy@stech.edu, (435) 865-3944.
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