

Course Syllabus

A4 Suspension and Steering

A Secondary-Level Course for Students Interested in Careers

Related to Automotive Suspension and Steering Systems

This course links occupational and academic pedagogy and is built on Integrated Curriculum

Standards. These standards incorporate state and national academic, occupational, and employability standards.

XII. Outline of Course Content

1) Steering System Design

- a) Introduction to Steering Systems
 - i) Basic Physics
 - ii) Mechanics and Forces
 - iii) Steering and Suspension Systems
- b) Power Non-Rack-and-Pinion Systems
 - i) Chemical and Physical Properties
 - ii) Mathematical Formulas
 - iii) Basic Physics
 - iv) Mechanics and Forces
- c) Power Rack-and-Pinion Systems
 - i) Chemical and Physical Properties
 - ii) Mathematical Formulas
 - iii) Basic Physics
 - iv) Mechanics/Forces

2) Power Steering Diagnosis

- a) Power Steering Service
- b) Diagnosing Fluid Leaks: Power Steering Pump and Hose Service
- c) Steering System Diagnosis
 - i) Pressure Testing Power Steering Systems
 - ii) Measurement Tools
 - iii) Scientific Method
 - iv) Problem Solving and Decision Making

- v) Inspection
- vi) Diagnosis

3) Inspecting and Replacing Steering Linkage Components

- a) Steering Linkage Inspection Procedures: Inspection

4) Non-Rack-and-Pinion (Integral) Power Steering Service

- a) Integral Power Steering Gear Repair
 - i) Inspection
 - ii) Blueprints and Diagrams
 - iii) Reference Materials

5) Power/Manual Rack-and-Pinion Steering Gear Service

- a) Manual Rack-and-Pinion Steering Gear Repair
- b) Power Rack-and-Pinion Steering Gear Repair

6) Steering Column Design and Service

- a) Energy Absorbing Steering Column Operation
 - i) Regulations
 - ii) Basic Physics
 - iii) Mechanics and Forces
- b) Steering Column Diagnosis, Inspection and Repair
 - i) Inspection
 - ii) Diagnosis

7) Front Suspension System Design

- a) Suspension System Parts
- b) Types of Suspension Systems
 - i) Basic Physics
 - ii) Mechanics and Forces
- c) Design and Function of Wheel Bearings

8) SLA Suspension Diagnosis and Lubrication

- a) Servicing SLA Front Suspension Systems
 - i) General Housekeeping
 - ii) Chemical and Physical Properties
 - iii) Diagnosing and Lubricating an SLA Suspension System
- b) Inspecting and Replacing Front Suspension Control Components
 - i) Safety
 - ii) Listening

iii) Inspection

c) Inspecting and Replacing Front Suspension Springs, Ball Joints, and Control Arms

i) Safety

ii) Listening

iii) Inspection