AORSI-100-INSP Workbook

Overview

This course prepares operators and trainers to maintain vehicles through preventative care and standardized inspection routines to ensure reliability and safety. Proper inspections reduce the likelihood of mechanical failures and increase the lifespan of vehicles. Participants will learn systematic approaches to pre-ride, post-ride, and seasonal inspections as well as how to build long-term maintenance programs.

Learning Objectives

- Perform pre-ride, post-ride, and seasonal inspections.
- Identify critical wear parts and maintenance intervals.
- Conduct fluid checks and replacements correctly.
- Establish routine preventative maintenance programs.

Module 1: Inspection Checklists – Daily & Seasonal

Consistent use of inspection checklists ensures that vehicles are ready for operation and reduces the likelihood of failure in the field. Pre-ride inspections focus on immediate readiness (tires, brakes, lights, fluids), while post-ride checks identify emerging issues. Seasonal inspections should cover deeper items such as corrosion, battery health, and suspension wear. Students should practice filling out real inspection forms.

Instructor Guidance: Provide standardized inspection sheets for hands-on use. Walk students through mock inspections to build familiarity.

Course Design Suggestion: Pair students to perform peer-to-peer inspections using detailed checklists.

Exercise: Complete a pre-ride inspection form for a sample off-road vehicle.

Reflection Question: Why are seasonal inspections as important as daily checks?

Module 2: Fluids – Oil, Coolant, Brake, Transmission, Differential

Fluids are the lifeblood of vehicles, and failure to maintain them can lead to catastrophic damage. Students must learn how to check levels, identify leaks, and perform replacements using manufacturer specifications. Each fluid type has distinct signs of degradation—burnt oil, contaminated coolant, or foamy transmission fluid all indicate problems that must be addressed.

Instructor Guidance: Provide real samples of clean vs. degraded fluids to train students' recognition skills.

Course Design Suggestion: Run a shop-based rotation where students check and top off each fluid type on real vehicles.

Exercise: Document fluid inspection results for three systems on a provided inspection sheet.

Reflection Question: How does improper fluid maintenance shorten vehicle life?

Module 3: Wear Parts – Belts, Filters, Hoses, Bearings

Wear parts degrade over time and must be inspected regularly. Belts can fray or slip, filters clog, hoses crack, and bearings wear down. Ignoring these parts leads to breakdowns in remote locations, posing safety risks. Students should learn how to visually inspect, measure tolerances, and recognize warning signs of part failure.

Instructor Guidance: Provide physical examples of worn vs. new parts for students to handle and compare.

Course Design Suggestion: Assign students to inspect and replace a filter or belt as part of a lab exercise.

Exercise: List five indicators of wear in hoses and belts that should trigger immediate replacement.

Reflection Question: Why is proactive replacement of wear parts more cost-effective than waiting for failure?

Module 4: Long-Term Storage and Maintenance Records

Vehicles stored for long periods require specific care, including fuel stabilization, battery maintenance, and protection against moisture. Accurate maintenance records ensure that inspections are tracked, problems are addressed, and accountability is maintained. Students should practice completing maintenance logs and understand how record-keeping supports preventative maintenance programs.

Instructor Guidance: Provide sample maintenance logs and explain how to track service intervals.

Course Design Suggestion: Have students draft a seasonal storage plan for a fleet vehicle.

Exercise: Fill out a mock maintenance record based on a sample inspection scenario.

Reflection Question: How does good record-keeping improve reliability and fleet safety?

Final Assessment

Task: Complete a full sample inspection of a provided vehicle, documenting findings on an inspection sheet. Students will also prepare a mock maintenance log covering daily, seasonal, and long-term storage entries. Additionally, answer the following sample written questions:

1. What are the three most important items to check during a pre-ride inspection?

2. How do you identify degraded coolant, and why is it dangerous to operate with it?

3. What are common signs of hose or belt failure?

4. Why is documenting inspections in a log essential for preventative maintenance programs?

5. What steps are necessary to safely store a vehicle for six months or more?

Duration: 6 hours (blended learning: classroom + shop)