AORSI Instructor Guide

Course Title: Load Securement & Cargo Management (LSCM)

Duration: 5 Hours (shop + field)

Audience: Off-road operators, logistics personnel, and trainers

Course Overview

This course teaches safe methods for transporting gear, tools, and supplies in off-road vehicles and trailers. It emphasizes proper loading, balance, and securement to prevent accidents and ensure efficient operations in demanding environments.

Learning Objectives (Instructor Notes)

- Understand weight limits, balance, and center of gravity. (Tip: Demonstrate with vehicle scales).
- Apply safe tie-down techniques and cargo securement standards. (Tip: Provide hands-on practice).
- Recognize how improper loading affects handling and safety. (Tip: Use scaled trailer simulations).
- Safely load and transport trailers in off-road settings. (Tip: Run pre-trip inspection drills).

Module 1: Load Ratings, Vehicle Capacity, and Trailer Towing (1.25 hours)

- Teach GVWR, GCWR, towing capacity, payload calculations.
- Course Design Suggestion: Students calculate safe load for sample vehicles.
- Exercise: Calculate payload for a loaded vehicle with trailer.
- Reflection: Why is exceeding GVWR dangerous even if handling feels stable?

Module 2: Cargo Securement Devices & Standards (1.25 hours)

- Teach use of straps, chains, nets, anchors; DOT and ANSI standards.
- Course Design Suggestion: Hands-on lab inspecting and using securement devices.
- Exercise: List five common securement errors and their corrections.
- Reflection: Why is redundancy important when securing heavy cargo?

Module 3: Center of Gravity & Handling Impacts (1.25 hours)

- Explain effects of load placement on handling and rollover risks.
- Course Design Suggestion: Use models/simulations to show weight distribution impacts.
- Exercise: Diagram balanced cargo for roof rack and trailer.
- Reflection: How does improper cargo distribution increase rollover risk?

Module 4: Trailer Operations and Off-Road Hauling (1.25 hours)

- Discuss hitching, trailer brakes, driving adjustments in off-road terrain.
- Course Design Suggestion: Field drill for hitching, maneuvering, recovering trailer.
- Exercise: Create a pre-trip inspection checklist for off-road trailer hauling.
- Reflection: What additional risks are present in off-road towing vs highway towing?

Final Assessment

Task: Participate in a cargo securement drill loading and balancing gear in a vehicle and trailer. Perform a load inspection to verify compliance with securement standards. Complete a short written exam:

- What is GVWR and why is it important for safe loading?
- Name two DOT/ANSI securement standards for tie-down devices.
- How does an elevated center of gravity affect off-road handling?
- List three safety checks before towing a trailer off-road.
- Why is redundancy critical in cargo securement?

Instructor Preparation Checklist

- Provide vehicle manuals for payload/towing calculations.
- Prepare tie-down devices and cargo types for lab work.
- Set up models or simulations to demonstrate balance.
- Organize trailer field drills with recovery practice.

Suggested Timing

- Introduction – 10 min
- Module 1 – 75 min
- Module 2 – 75 min
- Module 3 – 75 min
- Module 4 – 75 min
- Final Assessment – 30 min
- Wrap-up & Questions – 10 min