



Vehicle Weight and Axle Load Enforcement

Course: Weigh Stations and WIM Screening



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Introduction:

Vehicle weight and axle load enforcement, covering weigh stations and WIM screening, is a 1-week course for road authority overloading control, weigh station and freight compliance units that ends with an Overloading Control Plan for a case road authority. Overloaded trucks wear out pavements far faster than design traffic assumes, while poorly sited scales, easy station bypass and weak weighing evidence let repeat offenders escape sanction. Nominees already supervise weighing, enforcement or WIM data and learn through case studies built on axle weight records, station logs and penalty files. CoreConcept Training Center delivers this vehicle weight and axle load enforcement course.

Course Objectives:

- Interpret legal axle, axle group and gross vehicle weight limits, tolerances and the divisible versus non-divisible load distinction for enforcement decisions
- Specify static platform, axle and portable scales and weigh-in-motion sensors for fixed, mobile and virtual weigh station sites
- Operate WIM screening, pre-selection and electronic pre-clearance so that only likely overloaded vehicles are pulled in for static weighing
- Apply a weighing, offloading, detention and penalty procedure that extends liability to consignors, loaders and operators
- Assure evidential quality through scale verification, WIM calibration, accuracy classes and records that withstand challenge
- Quantify pavement damage from axle weight data and use it to target sites, set permit conditions and report results

Target Audience:

- Overloading control units responsible for axle load policy, weight limits and enforcement targets on the road network
 - Weigh station management units responsible for station operations, shift supervision and vehicle pull-in decisions
 - WIM programme units responsible for sensor sites, data quality and screening thresholds
 - Traffic enforcement units responsible for roadside weighing checkpoints, notices and offloading orders
 - Permit units responsible for authorising abnormal and non-divisible loads on specified routes
 - Freight compliance units in shipping and loading organisations responsible for consignment weights and load declarations
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Course Outline:

Day 1: Overloading Problem, Weight Limits and Control Baseline

- Axle Load, Axle Group and Gross Vehicle Weight Definitions
- Fourth Power Law Link Between Axle Load and Pavement Wear
- Equivalent Single Axle Load Counts for Overloaded Truck Traffic
- Divisible and Non-Divisible Load Rules With Weight Tolerances
- Overloading Control Baseline Audit of Sites, Staff and Outcomes

Day 2: Weighing Technology, WIM Standards and Station Design

- Static Platform, Axle and Portable Scale Options Compared
- WIM Sensor Types From Bending Plates to Piezo-Quartz Strips
- COST 323 Accuracy Classes for WIM System Specification
- OIML R134 Requirements for Low-Speed WIM in Legal Use
- Fixed, Mobile and Virtual Weigh Station Layout Choices

Day 3: Screening, Station Operations and Enforcement Procedure

- WIM Screening Thresholds and Pre-Selection Lane Signalling
- Electronic Pre-Clearance Using Transponders and Compliance History
- Static Reweigh Procedure and Weighing Ticket Recording
- Offloading, Load Redistribution and Vehicle Detention Orders
- Overweight Permit Conditions for Non-Divisible Abnormal Loads

Day 4: Evidential Quality, Shared Liability and Enforcement Risks

- Scale Verification Intervals and Test Weight Records
- WIM Calibration Drift, Temperature Correction and Data Validation
- Weighing Evidence File Standards for Penalty Challenges
- Chain of Responsibility Duties for Consignors and Loaders
- Station Avoidance Routes and Mobile Checkpoint Counter-Tactics

Day 5: Case Study Work on the Overloading Control Plan

- Case Network Axle Weight and Pavement Damage Diagnosis
 - Case Weigh Station and WIM Site Network Proposal
 - Case Penalty, Offloading and Consignor Liability Rules Package
 - Case Calibration and Evidence Assurance Schedule
 - Overloading Control Plan Completion and Peer Challenge
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Skills You Will Gain:

- Axle Weight Limit Interpretation
- Weighing Site Specification
- WIM Screening Threshold Setting
- Overload Penalty Processing
- Weighing Evidence Assurance
- Consignor Liability Enforcement
- Pavement Damage Estimation
- Overweight Permit Assessment

Why Attend This Course:

- Deliver an Overloading Control Plan for a case road authority to the head of road enforcement and the pavement asset manager
- Decide where to place static scales, WIM sensors and mobile checkpoints and which screening thresholds trigger a reweigh
- Avoid lost penalty challenges, uncalibrated scales and station bypass routes that let repeat overloaders escape sanction
- Share weighing procedures, calibration schedules and evidence file checklists with station, WIM and permit colleagues

Conclusion:

Back at work, the participant presents the Overloading Control Plan to the head of road enforcement and the pavement asset manager. They use it to approve the weigh station and WIM site network, set screening thresholds and confirm the penalty, offloading and consignor liability rules. After the first quarter under the plan, the unit should compare overload rates, reweigh hit rates, upheld penalties, calibration findings and estimated pavement damage against the baseline, then adjust site locations, thresholds and checkpoint schedules.

Frequently Asked Questions FAQ:

What should participants know before a vehicle weight and axle load enforcement course?

Participants should already supervise weighing, roadside enforcement, WIM data or permits and read basic weighing tickets and traffic counts. Bringing anonymised station logs, WIM records or penalty files helps them apply the case work to their own road network.

How does vehicle weight and axle load enforcement differ from a general traffic enforcement or bridge assessment course?

It concentrates on weighing trucks and acting on overloads: weight limits, scales, WIM screening, offloading, penalties, shipper liability and calibration. General traffic enforcement courses cover speed and driver offences, and bridge courses assess structural capacity, so both appear only where they shape weight rules.

Why can WIM screening not replace static weighing in vehicle weight and axle load enforcement?

Moving measurements are generally less accurate than static scales, so most regimes use WIM to select likely overloaded vehicles for a static reweigh. Frameworks such as OIML R134 set the accuracy needed before weigh-in-motion can serve legal use.

What do participants take back from the vehicle weight and axle load enforcement course?

Participants take back an Overloading Control Plan for a case road authority, with a pavement damage diagnosis, a weigh station and WIM site proposal, penalty and consignor liability rules and a calibration and evidence assurance schedule they can adapt.
