CONCEPT

Terminal Automation System (TAS) and TMS Training: Loading Bays, Batch Control and ERP Integration

16 – 20 August 2027
Amsterdam - Zuidas business district hotel



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Introduction:

Terminal Automation System TAS and TMS training on loading bays, batch control and ERP integration is a one-week course for terminal, automation, instrumentation and IT/OT engineers at fuel depots and marine terminals, ending with a TAS/TMS functional specification and upgrade plan. Terminals lose stock accuracy, billing integrity and safety margins when tank gauging, loading bay controls, metering records and business systems are poorly linked. Participants already maintain or engineer terminal control and information systems, and the course is taught through case studies of a working terminal. CoreConcept Training Center delivers this course on terminal automation system design and integration.

Course Objectives:

- Map the field, control, TMS and ERP layers of a terminal and the data each layer passes to the next
- Specify batch controller presets, additive and blending ratios and permissive conditions for loading bays and marine berths
- Configure order-to-load workflows that link ERP sales orders, driver and vehicle access, bay allocation and delivery documents
- Integrate tank gauging, metering and prover data into terminal inventory and load transaction records
- Assess overfill, grounding and emergency shutdown interlocks and terminal network zoning against IEC 62443 zones and conduits
- Prepare a TAS/TMS functional specification and phased upgrade plan for a terminal running legacy automation

Target Audience:

- Engineers responsible for terminal automation systems, loading gantry controls and batch controller configuration
- Instrumentation engineers responsible for tank gauging, meters, overfill sensors and grounding devices at fuel depots
- IT/OT engineers responsible for terminal management software, ERP interfaces and control network security
- Terminal operations engineers responsible for bay scheduling, product dispatch and inventory accuracy
- Project engineers responsible for specifying, tendering or upgrading automation at depots and marine terminals

Course Outline:

Day 1: Terminal Automation Foundations and Current-State Assessment

- Oil Terminal Process Map from Tank Receipt to Dispatch
- TAS Functional Scope Across Road, Rail and Marine Loading
- TMS Role Compared with DCS and Safety Systems
- Business Case Drivers for Throughput, Loss Control and Accountability
- Current-State Automation Assessment Checklist for a Fuel Depot

Day 2: Layered TAS Architecture, Interfaces and Security Zoning

- Four-Layer TAS Architecture Covering Field, Control, TMS and ERP
- Batch Controller Preset, Permissive and Transaction Data Model
- Tank Gauging System Interface for Live Inventory Updates
- Meter and Prover Records Feeding the Load Transaction
- IEC 62443 Zones and Conduits Applied to Terminal Networks

Day 3: Loading Bay, Marine Berth and Order-to-Load Workflows

- Driver Card and Vehicle Identification at the Terminal Gate
- Bay Allocation and Queue Management Logic for Gantry Loading
- Additive Injection and Inline Blending Ratio Control Configuration
- Marine Loading Control and Ship-Shore Link Data Exchange
- Order-to-Load Workflow from ERP Sales Order to Delivery Document

Day 4: Safety Interlocks, Failure Modes and Legacy Upgrade Risk

- Overfill Protection Permissive Logic for Bottom-Loaded Road Tankers
- Grounding and Bonding Verification Interlocks Before Batch Release
- Emergency Shutdown Cause and Effect Matrix for Loading Gantries
- Transaction Failure Cases During Network Loss and Offline Loading
- Legacy TAS Migration Options with Phased Cutover Planning

Day 5: Case Study: TAS/TMS Functional Specification and Upgrade Plan

- Case Terminal Baseline Review Using the Assessment Checklist
- Functional Specification Drafting for Bay, Batch and Inventory Modules
- ERP and Tank Gauging Interface Control Document Preparation
- Security Zone Model and Interlock Matrix for the Case Terminal
- TAS/TMS Functional Specification and Upgrade Plan Completion

Skills You Will Gain:

- Terminal Automation Architecture Design
- Batch Controller Configuration
- Loading Bay Allocation Planning
- Terminal Inventory Reconciliation
- ERP Interface Specification
- Loading Safety Interlock Review
- OT Network Zoning
- Legacy System Migration Planning

Why Attend This Course:

- Deliver a TAS/TMS functional specification and upgrade plan to the terminal manager and engineering lead for tender or budget approval
- Choose between phased migration and full replacement of a legacy terminal automation system using defined technical and operational criteria
- Avoid unreconciled stock, unbilled loads and overfill incidents caused by broken links between ERP, tank gauging and loading bay controls
- Brief operators, IT staff and contractors on the layered architecture, interlock matrix and security zones of the terminal

Conclusion:

Back at work, the participant gives the terminal manager, engineering lead and IT/OT security owner a functional specification and upgrade plan they can use to scope a tender, set a budget or approve a phased cutover. The same document guides integration testing between loading bays, tank gauging and the ERP system. After its first use, the unit should review whether load transactions reconcile with gauged stock, whether interlock trips were traced to a cause, and whether the agreed network zones held through the change.

Frequently Asked Questions FAQ:

What should participants know before a terminal automation system TAS and TMS course?

Participants should already work with terminal control, instrumentation or business systems and understand basic loading and tank storage operations. No programming skill is needed; familiarity with how orders, loads and stock records move through a depot helps participants apply the case studies quickly.

How does terminal automation system TAS and TMS training differ from loading master or PLC programming courses?

It concentrates on how the whole terminal system is specified and integrated, from bay and batch control through tank gauging to ERP. Loading master courses cover jetty cargo operations, and PLC courses cover writing controller logic, so both are touched only where they interface.

Why do terminals connect the terminal automation system TAS and TMS to ERP?

Linking them lets sales orders flow to loading bays and completed load data return for invoicing and stock records without re-keying. This reduces billing errors, unexplained stock differences and truck waiting time, and gives one auditable record for each load.

What do participants take back from terminal automation system TAS and TMS training?

Participants take back a TAS/TMS functional specification and upgrade plan for a case terminal, covering architecture layers, bay and batch functions, interfaces, interlocks and security zones. It can be adapted to their own depot or marine terminal for tendering or upgrade planning.