

Traffic Signal Control and Timing Operations Training Course

1 – 5 November 2027
Madrid

AGILE LEADERS
Training Center

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Ref: 2153_257702 **Date:** 1 – 5 November 2027 **Location:** Madrid **Fees:** 5700 Euro

Overview

Traffic Signal Control and Timing Operations Training Course is a one-week intermediate programme for traffic operations engineers, signal timing practitioners, municipal road-authority staff and traffic management centre personnel. Participants build a Signal Timing Operations Plan that combines traffic signal control course principles, signal phasing and timing practice, coordinated traffic signal control, detector and controller evidence, traffic signal performance measures and field implementation. Agile Leaders Training Center presents traffic signal operations practice.

The course links engineering objectives to day-to-day signal performance. It develops the ability to interpret movement demand, phase logic, clearance intervals, pedestrian needs, actuated settings, corridor coordination and high-resolution event data without tying the learning to one controller vendor or software package.

Who Should Attend

- Traffic operations engineers responsible for signalised intersections and corridors
- Signal timing practitioners who develop, implement or review timing plans
- Traffic management centre personnel who diagnose operational problems
- Municipal and road-authority staff who manage signal assets and contractors
- Transport consultants supporting retiming and performance-improvement programmes

Participants should understand basic traffic-flow, intersection and road-safety concepts. The course does not replace local signal standards, licensed design approval, electrical maintenance training or project-specific controller certification.

Departments and Industries

- Road authorities, municipalities and public works departments
- Traffic management centres and network operations teams
- Transport engineering and intelligent-transport consultancies
- Signal-system integrators, contractors and maintenance providers
- Urban mobility, public transport and road-safety agencies

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Learning Objectives

- Translate network objectives into measurable signal-control outcomes.
- Develop phase sequences, timing intervals and pedestrian service settings.
- Configure and assess pretimed, semi-actuated and fully actuated operation.
- Build cycle, split and offset plans for isolated and coordinated intersections.
- Diagnose problems using field observations, controller records and performance measures.
- Complete a Signal Timing Operations Plan with implementation, validation and monitoring controls.

Course Agenda

Day 1: Define Signal-Control Objectives

- Safety, Mobility, Reliability and Multimodal Objective Map
- Intersection Geometry, Movement and Conflict Diagram
- Demand, Saturation Flow, Queue and Delay Evidence Review
- Pretimed, Actuated and Adaptive Control Comparison
- Signal Management Roles, Standards and Change-Control Register

Day 2: Design Phasing and Timing

- Phase Sequence, Ring-Barrier and Compatibility Diagram
- Minimum Green, Passage, Maximum Green and Recall Settings
- Yellow Change and Red-Clearance Interval Review
- Pedestrian, Bicycle and Accessible Service Timing
- Timing Sheet and Controller-Parameter Quality Check

Day 3: Operate Detection and Actuated Control

- Detector Purpose, Placement, Zone and Failure-Mode Map
- Call, Extension, Gap-Out, Force-Off and Termination Logic
- Volume-Density and Queue-Responsive Operation Concepts
- Special Conditions, Transit Priority and Emergency Pre-emption Interfaces
- Detector and Controller Event Data Diagnostic Exercise

Day 4: Coordinate Signals Across a Corridor

- Cycle-Length Selection and Common-Cycle Decision
- Split Allocation, Offset, Progression and Time-Space Diagram
- Coordination Boundaries, Transition and Time-of-Day Plans
- Oversaturation, Queue Spillback and Network Constraint Review
- Coordinated Timing Plan and Scenario Comparison

Day 5: Diagnose, Implement and Improve

- Traffic Signal Performance Measures and Objective Dashboard
- Arrival on Green, Split Failure, Purdue Coordination and Queue Indicators
- Field Observation, Before-After Test and Validation Protocol
- Retiming Deployment, Rollback, Documentation and Stakeholder Plan
- Capstone Exercise: Complete a Signal Timing Operations Plan

Practical Exercises

- Map movements, conflicts and phases for a signalised intersection.
- Review clearance, pedestrian and actuated parameters for safety and service.
- Diagnose detector and phase problems from event records.
- Develop cycle, split and offset options for a corridor.
- Prepare an implementation, validation and monitoring plan for retiming.

FAQs

Who benefits from a traffic signal control course?

Traffic engineers, signal timing practitioners, operations-centre staff, municipal reviewers and consultants benefit when they manage or evaluate signalised intersections and corridors.

What is the difference between pretimed and actuated control?

Pretimed control follows stored interval patterns, while actuated control uses detector calls and timing logic to serve demand within configured limits.

How are cycle, split and offset used?

The cycle defines the repeated timing period, splits allocate time among phases, and offsets position coordinated green periods between intersections to support progression.

What do traffic signal performance measures reveal?

They help teams observe demand, arrivals, phase service, split failures, queues, coordination quality and reliability so operational decisions can be evidence based.

Does the course teach one signal software package?

No. It teaches transferable control logic, analysis, diagnostics and operations planning that can be applied with locally approved tools and controller platforms.

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Conclusion

Participants leave with a practical operating framework and a completed signal plan. They can connect objectives, timings, detector logic, coordination, implementation and performance evidence through a controlled improvement cycle.