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COURSE BROCHURE

Elevated Road and Viaduct Construction and Maintenance Training Course

5 – 9 September 2027
Muscat

Elevated Road and Viaduct Construction and Maintenance Training Course

Ref: 1442_53704 **Date:** 5 – 9 September 2027 **Location:** Muscat **Fees:** 6500 GBP

Elevated Road and Viaduct Construction and Maintenance is a 1-week training course for highway engineers, bridge inspectors and infrastructure maintenance managers, built around a viaduct condition and intervention register that records the state of every span, bearing, joint and deck and the repair each needs. Many urban flyovers built in recent decades are now reaching the age when bearings, joints and waterproofing start to fail. Jupiter Prime Training delivers this elevated road and viaduct construction and maintenance course.

Why Elevated Road and Viaduct Construction and Maintenance Matters Now

Three forces shape this work today. Traffic volumes and axle loads on urban flyovers keep rising, which accelerates fatigue in joints and decks. Closing an elevated road for repair is costly and disruptive, so owners need repairs planned precisely and carried out quickly. Funding bodies also ask for evidence that maintenance money goes to the structures at greatest risk. Owners who inspect and maintain viaducts systematically extend service life and avoid emergency closures; those who wait face spalling concrete, seized bearings and leaking joints that damage the structure below. The course draws on ISO 55001 for asset management and EN 13306 for maintenance terminology.

Who Gains Most from Elevated Road and Viaduct Construction and Maintenance

- Engineers who supervise viaduct and flyover construction on site
- Inspectors who examine decks, piers, bearings and joints
- Maintenance managers who prioritise and budget structure repairs
- Contractor staff who carry out concrete repair and joint replacement
- Traffic planners who arrange lane closures for structural work

A roads authority, metro operator or highway concessionaire gains most when its inspectors and maintenance managers attend together.

Elevated Road and Viaduct Construction and Maintenance Capabilities

Participants move from recording visible defects to deciding which span, bearing or joint needs what intervention and when.

- Assess precast segment, balanced cantilever and span-by-span methods — construction quality checks
- Specify bearing and expansion joint types for movement and load — replacement decisions
- Apply visual and non-destructive inspection to decks and piers — defect rating
- Test deck waterproofing and drainage performance — chloride and leakage control
- Design concrete repair and protection methods — contractor scopes

- Build a ranked maintenance programme for a viaduct network — owners and funders

Key Elevated Road and Viaduct Construction and Maintenance Terms

- Viaduct — a long elevated structure of many spans carrying a road or railway over land or other routes.
- Precast segmental construction — building a deck from factory-cast concrete pieces lifted into place and joined by post-tensioning.
- Elastomeric bearing — a rubber and steel pad that carries deck load while allowing movement and rotation.
- Expansion joint — a gap device in the deck that lets the structure move with temperature while carrying traffic.
- Spalling — the breaking away of concrete surface, often caused by corroding reinforcement beneath it.
- Half-cell potential survey — a test that maps the likelihood of reinforcement corrosion across a concrete surface.

Elevated Road and Viaduct Construction and Maintenance Day by Day

Day 1: Viaduct Forms and Construction Methods

- Viaduct and Flyover Structural Forms — Span, Pier and Deck Choices
- Precast Segmental and Span-by-Span Erection — Method Selection
- Balanced Cantilever Construction — Geometry and Stressing Control
- Post-Tensioning Ducts and Grouting — Long-Term Durability
- Construction Quality Records — Handover to Maintenance Teams

Day 2: Bearings, Joints and Deck Systems

- Elastomeric and Pot Bearings — Movement and Rotation Capacity
- Expansion Joint Types and Failure Modes — Replacement Planning
- Deck Waterproofing Membranes — Chloride and Water Protection
- Drainage, Scuppers and Downpipes — Leakage Damage Prevention
- Parapets and Surfacing — Safety and Ride Quality

Day 3: Inspection and Condition Assessment

- Principal and General Inspection Regimes — Frequency and Access
- Defect Rating Scales for Spans and Piers — Consistent Scoring
- Half-Cell Potential and Cover Surveys — Corrosion Risk Mapping
- Bearing and Joint Movement Measurement — Seizure and Wear Detection
- Drone and Under-Bridge Access Methods — Safe Inspection Planning

Day 4: Repair and Maintenance Planning

- Concrete Patch Repair and Protective Coatings — Repair Method Choice
- Cathodic Protection Options — Long-Life Corrosion Control
- Bearing Jacking and Replacement Sequences — Traffic Management Needs
- Joint Replacement Under Live Traffic — Night Work Planning
- Whole-Life Cost Comparison of Interventions — Budget Priorities

Day 5: Practising the Viaduct Condition and Intervention Register

- Inspection Report Review of a Sample Flyover — Applied Defect Rating
- Corrosion Survey Interpretation — Applied Half-Cell Results
- Bearing and Joint Intervention Selection — Applied Replacement Planning
- Criticality Ranking Under ISO 55001 Principles — Network Repair Priorities
- Viaduct Condition and Intervention Register — Span, Element and Repair Record

Applying Elevated Road and Viaduct Construction and Maintenance After the Course

- Re-rate the bearings and expansion joints of one viaduct using a consistent defect scale and flag those needing replacement.
- Inspect deck drainage outlets on a flyover and record leaks that wet piers or bearings below.

Elevated Road and Viaduct Construction and Maintenance Questions FAQ

What is elevated road and viaduct construction and maintenance and why does it matter now?

It is the building, inspection and repair of flyovers and multi-span viaducts. Ageing structures, heavier traffic and costly closures make planned maintenance essential.

Which roles gain most from elevated road and viaduct construction and maintenance?

Highway engineers, bridge inspectors and maintenance managers gain most, along with repair contractors and traffic planners who support structural work.

How does elevated road and viaduct construction and maintenance differ from a concrete repair materials course?

It covers the whole elevated structure, from erection to bearings, joints and network planning. A concrete repair materials course focuses on mortars and strengthening products alone.

What do you bring back from elevated road and viaduct construction and maintenance?

You bring back a register recording each span, bearing and joint with its condition rating and recommended repair, ready to feed your maintenance budget.

Elevated Road and Viaduct Construction and Maintenance: The Way Forward

The viaduct condition and intervention register first informs which structure enters the next repair package and which elements need urgent attention. Inspectors update it, managers use it to set budgets and planners schedule closures from it. After the first inspection cycle, revisit the defect scales, since consistent ratings across inspectors matter more than detail.