



Overhead and EOT Crane Engineering

Course: Inspection, Maintenance, Load Testing and Examination



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Introduction:

Overhead and EOT crane engineering course on inspection, maintenance, load testing and examination, held over 5 days for the maintenance and inspection staff who keep plant cranes in service, ending with a Crane Fleet Inspection, Maintenance and Examination Plan for a case organisation. Many plants run EOT, gantry and jib cranes on fixed checklists that miss girder cracking, rail wear, rope deterioration and bypassed limit switches until a hoist fails. Nominees already maintain or inspect cranes and work through inspection walkthroughs of hoists, runways and test records. CoreConcept Training Center delivers this overhead and EOT crane engineering course.

Course Objectives:

- Classify overhead, gantry, semi-gantry and jib cranes by configuration, duty group and service class to set inspection intervals
- Inspect bridge girders, end carriages, runway rails and wheels against defect and wear criteria and record their condition
- Assess wire ropes, reeving, drums, sheaves, hooks and bottom blocks using recognised discard and rejection criteria
- Maintain hoist brakes, gearboxes, motors, limit switches, overload limiters and pendant or radio controls to a preventive schedule
- Plan and witness static and dynamic load tests and prepare thorough examination reports with clear defect gradings
- Produce a Crane Fleet Inspection, Maintenance and Examination Plan for a case plant

Target Audience:

- Mechanical and electrical maintenance staff responsible for keeping overhead and gantry cranes in service
 - Crane inspection staff who carry out frequent and periodic inspections and grade defects
 - Staff appointed to conduct thorough examinations and witness load tests on lifting machines
 - Reliability and planning staff who set crane maintenance intervals and spare parts strategies
 - Workshop, warehouse and port engineering staff who supervise crane contractors and accept repaired cranes
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Course Outline:

Day 1: Overhead Crane Types, Duty Classification and Fleet Baseline

- Single Girder, Double Girder and Top Running Bridge Configurations
- Gantry, Semi-Gantry, Wall-Mounted and Jib Crane Arrangements Compared
- FEM 1.001 Mechanism Groups and Crane Duty Classification
- CMAA 70 and CMAA 74 Service Classes for Crane Duty
- Crane Fleet Register and Condition Baseline Spreadsheet

Day 2: Crane Structures, Runways and Hoisting Mechanisms

- Box Girder and Rolled Beam Bridge Deflection Checks
- End Carriage, Wheel Flange and Bogie Load Path Review
- Runway Rail Alignment, Span Tolerance and Rail Clip Survey
- Electric Wire Rope Hoist Drum, Gearbox and Motor Layout
- ASME B30.2 Frequent and Periodic Inspection Categories

Day 3: Inspection and Preventive Maintenance of Crane Components

- Wire Rope Broken Wire Count and Diameter Reduction Measurement
- Reeving Systems, Sheave Groove Gauging and Drum Spooling Checks
- Hook Throat Opening, Latch and Bottom Block Wear Measurement
- Hoist and Travel Brake Lining, Torque and Air Gap Adjustment
- Limit Switch, Overload Limiter and Pendant Control Function Testing

Day 4: Defect Criteria, Failure Modes and Load Testing

- Girder Fatigue Cracking and Weld Defect Grading Matrix
- Wheel Skewing, Rail Wear and Long Travel Crabbing Diagnosis
- Magnetic Rope Testing for Internal Broken Wire Detection
- Static Overload Test Procedure and Girder Deflection Recording
- Dynamic Load Test Sequence for Hoist and Travel Motions

Day 5: Inspection Walkthrough and Crane Fleet Examination Plan

- Case Steel Plant EOT Crane Walkthrough With Defect Grading
 - Case Port Gantry Crane Wire Rope and Hook Assessment
 - Thorough Examination Report Drafting With Defect Priorities
 - Preventive Maintenance Task Interval and Spare Parts Schedule
 - Crane Fleet Inspection, Maintenance and Examination Plan Completion
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Skills You Will Gain:

- Crane Duty Classification
- Girder and Runway Condition Assessment
- Wire Rope Discard Assessment
- Hook and Bottom Block Gauging
- Hoist Brake Adjustment
- Crane Safety Device Testing
- Load Test Witnessing
- Thorough Examination Reporting

Why Attend This Course:

- Deliver a Crane Fleet Inspection, Maintenance and Examination Plan to the plant maintenance manager and the lifting equipment owner for approval
- Decide when a wire rope, hook, wheel or brake lining is removed from service rather than left for the next shutdown
- Avoid dropped loads, runway derailments and unplanned crane outages that stop melt shops, kiln lines, turbine halls and quaysides
- Coach technicians and contractors with the defect grading matrix, rope gauging method and load test checklist

Conclusion:

Back at work, the participant presents the Crane Fleet Inspection, Maintenance and Examination Plan to the plant maintenance manager, the lifting equipment owner and the reliability lead. They use it to agree inspection intervals by duty class, rope and brake replacement triggers, load test arrangements and the format of examination reports. After the first round of periodic inspections under the plan, the unit should review defects found, cranes taken out of service, overdue examinations closed and spare parts consumed.

Frequently Asked Questions FAQ:

What should participants know before the overhead and EOT crane engineering course?

Participants should already maintain, inspect or supervise overhead, gantry or jib cranes and be able to read general arrangement drawings and maintenance records. A vernier caliper, tape measure and spreadsheet application are used in the gauging and planning exercises.

How does overhead and EOT crane engineering differ from mobile crane lift planning?

It deals with the condition of fixed cranes themselves: girders, runways, hoists, ropes, brakes and safety devices, and how they are tested and examined. Lift planning courses deal with selecting mobile cranes, rigging and ground bearing for individual lifts.

Why do overhead and EOT cranes need both load tests and thorough examinations?

A load test proves the crane holds and moves a defined overload at a moment in time, while a thorough examination judges wear, cracking and device function that develop between tests. Together they show whether the crane remains fit until the next examination.

What do participants take back from the overhead and EOT crane engineering course?

Participants take back a Crane Fleet Inspection, Maintenance and Examination Plan with a fleet register, duty classes, inspection intervals, defect grading matrix, load test checklist and examination report format they can adapt to their own plant.
