



# Mine Fleet Management and Haulage Operations Course: Cycle Times, Fleet Matching and Dispatch



## **Mine Fleet Management and Haulage Operations Course: Cycle Times, Fleet Matching and Dispatch**

### **Introduction:**

Mine fleet management and haulage operations is the subject of this 5-day course for mine operations, production control and dispatch staff who run truck and shovel fleets, ending with a Fleet Matching and Haulage Improvement Plan. Mines lose tonnes and raise cost per tonne when trucks queue at loading units, payloads drift, haul roads are poorly maintained and dispatch rules are set by habit. Nominees already work in mine operations or production control, and teaching is by modelling build on cycle time records, dispatch logs and cost sheets. CoreConcept Training Center delivers this mine fleet management course.

### **Course Objectives:**

- Build a baseline of fleet hours, payloads, delays and haulage cost from site records for a truck and shovel operation
- Calculate truck cycle times from haul profiles, speeds on grade and loading and dumping times
- Size a truck fleet to a target production using match factor and queue time estimates
- Compare dispatch allocation rules and read dispatch logs to find shovel starvation and truck bunching
- Check haul road geometry, rolling resistance and maintenance routines against the speeds the cycle model assumes
- Prepare a Fleet Matching and Haulage Improvement Plan that ranks actions by cost per tonne hauled saved

### **Target Audience:**

- Mine operations staff responsible for daily truck and shovel performance against the production plan
  - Production control staff who set shift targets, allocate loading units and review fleet reports
  - Dispatch and control room staff who run fleet management systems and respond to queues and breakdowns
  - Mine technical services staff who prepare haulage estimates, fleet requirements and cost per tonne budgets
  - Contractor operations managers who report haulage productivity and cost to mine owners
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## **Course Outline:**

### **Day 1: Haulage Landscape and Current-State Baseline**

- Truck and Shovel Fleet Register With Rated Payloads
- Haulage Cost Structure Split Into Fuel, Tyres, Labour and Repairs
- Loader and Truck Class Pairing Rules by Bench Height
- Delay Code Structure for Truck and Shovel Operating Time
- Haulage Baseline Scorecard for a Case Mine Fleet

### **Day 2: Cycle Time and Fleet Matching Models**

- Truck Cycle Time Build-Up From Load, Haul, Dump and Return
- Rimpull and Retarder Curve Reading for Speed on Grade
- Match Factor Calculation for Trucks per Loading Unit
- Queuing Model Wait Time Estimates at Shovel and Crusher
- Fleet Size Calculation From Target Tonnes per Shift

### **Day 3: Dispatch Systems and Haul Road Management**

- Fixed Assignment Versus Dynamic Dispatch Allocation Rule Comparison
- Linear Programming Dispatch Objectives and Tonnage Target Settings
- Dispatch Log Review for Shovel Starvation and Truck Bunching
- Haul Road Width, Gradient and Cross-Fall Design Checklist
- Rolling Resistance Measurement and Grader Maintenance Scheduling

### **Day 4: Payload, Fuel, Availability and Cost per Tonne**

- Payload Distribution Histograms and Overload Control Limits
- Fuel Burn per Tonne-Kilometre Benchmarking by Haul Route
- Availability, Utilisation and Effective Utilisation Calculation Sheet
- Tyre Life and Haul Speed Trade-Off Analysis
- Cost per Tonne Hauled Model With Sensitivity Runs

### **Day 5: Modelling Build of the Fleet Matching and Haulage Improvement Plan**

- Case Mine Cycle Time Data Review and Baseline Rebuild
  - Case Fleet Sizing Run for a Revised Production Target
  - Case Dispatch Rule and Haul Road Fix Option Ranking
  - Case Cost per Tonne Sensitivity and Savings Estimate
  - Fleet Matching and Haulage Improvement Plan Completion
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## **Skills You Will Gain:**

- Haulage Time Usage Analysis
- Cycle Time Estimation
- Match Factor Sizing
- Queue Time Assessment
- Dispatch Rule Evaluation
- Haul Road Condition Review
- Payload and Fuel Benchmarking
- Haulage Cost Modelling

## **Why Attend This Course:**

- Deliver a Fleet Matching and Haulage Improvement Plan to the mine manager, production control lead and dispatch supervisor
- Decide whether a production shortfall calls for more trucks, a different dispatch rule or repairs to the haul road
- Avoid idle loading units, long truck queues and overloaded or underloaded trucks that raise cost per tonne
- Share cycle time sheets, match factor templates and haulage scorecards with shift supervisors and dispatchers

## **Conclusion:**

Back at work, the participant presents the Fleet Matching and Haulage Improvement Plan to the mine manager, production control lead and dispatch supervisor, who use it to decide fleet additions, dispatch rule changes and haul road works. Shift teams use its cycle time sheets and scorecards to track queues and payloads each week. After its first quarter of use, the unit should review cost per tonne hauled, truck queue time and effective utilisation against the plan, then adjust assumptions where site records differ.

## **Frequently Asked Questions FAQ:**

### **What should participants know before a mine fleet management and haulage operations course?**

Participants should already work in mine operations, production control or dispatch and be comfortable with spreadsheets. Bringing anonymised cycle time records, dispatch logs or monthly haulage cost figures from their own site makes the modelling work more useful.

## **How does a mine fleet management and haulage operations course differ from a mine planning or equipment maintenance course?**

It concentrates on running the truck and shovel fleet day to day: cycle times, matching, dispatch, payload, fuel and cost per tonne. Mine planning courses design pits and schedules, and maintenance courses repair machines rather than manage their productivity.

## **Why does mine fleet management depend on matching trucks to loading units?**

Too few trucks leave the shovel waiting, and too many make trucks queue. Both raise cost per tonne. A match factor and a queue estimate show the truck count that balances loading capacity with haul capacity for a given production target.

## **What do participants take back from the mine fleet management and haulage operations course?**

Participants take back a Fleet Matching and Haulage Improvement Plan, plus a cycle time sheet, a match factor and queue model, a dispatch log review checklist and a cost per tonne hauled template adaptable to their own mine.

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