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COURSE BROCHURE

# Cooling Tower Management and Maintenance Training Course

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Registered in the United Kingdom and Saudi Arabia

# Cooling Tower Management and Maintenance Training Course

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Cooling Tower Management and Maintenance is a 1-week training course for utility and plant maintenance engineers and cooling water supervisors, built around a cooling tower asset care plan that sets inspection intervals, water treatment targets and a renewal budget for each cell. Heat rejection now limits output and energy use on many sites, so neglected fill, fans or chemistry quickly turns into lost capacity. Jupiter Prime Training delivers this cooling tower management and maintenance course.

## Why Cooling Tower Management and Maintenance Matters Now

Three forces shape cooling tower work today: rising ambient temperatures that erode thermal margin, tighter expectations on water consumption and blowdown discharge, and closer public scrutiny of Legionella risk from aerosols and drift. A site that manages its towers well keeps approach temperatures stable, controls make-up water and avoids unplanned cell outages during peak demand. The course rests on ISO 55001 for asset management and EN 13306 for maintenance terminology, applied to evaporative cooling equipment.

## Who Gains Most from Cooling Tower Management and Maintenance

- Engineers accountable for the availability and thermal duty of open and closed circuit towers
- Supervisors who set cooling water chemistry, dosing and blowdown control
- Planners who schedule cell outages, fill replacement and fan overhauls
- Specialists who own the water hygiene risk assessment and sampling regime
- Engineers who prepare renewal budgets and life extension cases for tower structures

A utilities or site services group gains most when its mechanical, water treatment and planning members attend together and agree one asset care plan.

## Cooling Tower Management and Maintenance Capabilities

Participants connect what they see inside a cell, such as scaled fill or a vibrating fan stack, to duty, hygiene and cost decisions.

- Assess tower thermal performance from approach, range and L/G ratio — informing operations managers on lost capacity
- Specify inspection routines for fill, drift eliminators, basins and casing — supporting planners setting outage scopes
- Design a cooling water treatment regime for scale, corrosion and biofouling — guiding chemistry supervisors and suppliers
- Apply a Legionella risk assessment and sampling plan — serving site health and safety leads
- Build a fan, gearbox and drive shaft maintenance strategy — informing reliability engineers

- Calculate a renewal and life-cycle budget per cell — supporting finance and asset owners

## Key Cooling Tower Management and Maintenance Terms

- Approach — the difference between cold water temperature leaving the tower and the ambient wet-bulb temperature.
- Range — the temperature drop of the circulating water between tower inlet and cold water basin.
- Cycles of concentration — the ratio of dissolved solids in circulating water to those in make-up water.
- Drift eliminator — a baffle assembly that captures water droplets carried by the exhaust air before they leave the tower.
- Fill media — splash bars or film packs that increase the contact area between air and falling water.
- Blowdown — water deliberately drained from the system to limit dissolved solids and scale formation.

## Cooling Tower Management and Maintenance Day by Day

### Day 1: Tower Duty and Asset Context

- Counterflow and Crossflow Tower Configurations — Choosing Inspection Focus by Design
- Heat Balance, Approach and Range — Setting the Required Thermal Duty
- ISO 55001 Asset Management Principles — Linking Towers to Site Objectives
- EN 13306 Maintenance Terminology — Agreeing a Shared Failure Vocabulary
- Tower Asset Register and Criticality Ranking — Prioritising Cells for Attention

### Day 2: Mechanical Components and Inspection

- Fan, Gearbox and Drive Shaft Condition Checks — Planning Overhaul Intervals
- Vibration Switches and Oil Analysis — Detecting Gearbox Degradation Early
- Fill Media and Drift Eliminator Surveys — Deciding Cleaning or Replacement
- Hot Water Distribution and Nozzle Inspection — Restoring Even Water Loading
- Basin, Casing and Structural Timber or FRP Assessment — Scoping Repairs

### Day 3: Water Treatment and Hygiene

- Scale, Corrosion and Biofouling Mechanisms — Selecting Treatment Chemistry
- Cycles of Concentration and Blowdown Control — Balancing Water Use and Scaling
- Oxidising and Non-Oxidising Biocide Dosing — Controlling Microbial Growth
- Legionella Risk Assessment and Sampling Plan — Protecting Staff and Neighbours
- Corrosion Coupons and Water Analysis Logs — Verifying Treatment Effectiveness

## Day 4: Performance Monitoring and Budgeting

- Thermal Performance Testing and Tower Capability — Quantifying Lost Capacity
- Fan Energy and Variable Speed Drive Settings — Reducing Power Consumption
- Condition Monitoring Dashboards for Tower Cells — Triggering Maintenance Work
- Life-Cycle Cost and Renewal Budgeting — Timing Fill and Structural Renewal
- Contractor Scopes and Outage Windows — Securing Cell Shutdown Resources

## Day 5: Practising the Cooling Tower Asset Care Plan

- Criticality Ranking Applied to a Multi-Cell Tower — Sequencing Outages
- Inspection Findings Converted into Work Orders — Assigning Priorities
- Treatment and Hygiene Targets for a Sample Site — Setting Control Limits
- Renewal Budget Review with Peer Challenge — Testing Cost Assumptions
- Cooling Tower Asset Care Plan — Completing the Site Document

## Applying Cooling Tower Management and Maintenance After the Course

- Lead a walkdown of each tower cell using the fill, drift eliminator and gearbox checklist.
- Review the last quarter of water analysis and blowdown data against cycles of concentration targets and adjust the dosing regime with the treatment supplier.

## Cooling Tower Management and Maintenance Questions FAQ

### What is cooling tower management and maintenance and why does it matter now?

It is the planned care of tower mechanics, fill, water chemistry and hygiene so towers deliver their thermal duty. Neglected towers threaten output, cost and public health.

### Which roles gain most from cooling tower management and maintenance training?

Maintenance engineers, cooling water supervisors, planners and hygiene specialists who look after evaporative towers gain most.

### How does cooling tower management and maintenance differ from a cooling tower troubleshooting course?

This course focuses on managing towers as assets: inspection routines, treatment regimes, hygiene control and renewal budgets. A troubleshooting course concentrates on diagnosing operating faults at the tower.

## What do you bring back from cooling tower management and maintenance training?

You bring back a cooling tower asset care plan for your site, with inspection intervals, treatment and hygiene targets, a fan and gearbox strategy and a cell-by-cell renewal budget ready for review with your manager.

## Cooling Tower Management and Maintenance: The Way Forward

The cooling tower asset care plan first informs which cells to open at the next outage and what treatment limits to hold. Maintenance engineers, chemistry supervisors and planners use it together. After its first use, revisit the renewal budget against the actual fill and gearbox condition found during the first cell openings.