JUPITER PRIME

Consulting • Training • Advisory

جوبيتر برايم للاستشارات والتدريب

COURSE BROCHURE

# Advanced 4D and 5D BIM for Construction Planning and Cost Control Training Course

21 March – 1 April 2027
Muscat

# Advanced 4D and 5D BIM for Construction Planning and Cost Control Training Course

**Ref:** 158_4454 **Date:** 21 March – 1 April 2027 **Location:** Muscat **Fees:** 11700 GBP

Advanced 4D and 5D BIM for Construction Planning and Cost Control is a 2-week training course for planners, cost engineers, project controls leads and digital construction managers, built around one work product: a 4D and 5D project controls baseline for a live contract. Contractors now win and lose margin on how quickly they can sequence work, price change and forecast cash, and linked schedules and estimates shorten each of those cycles. Jupiter Prime Training delivers this course on 4D and 5D BIM.

## Why 4D and 5D BIM Matters Now

Three groups shape 4D and 5D BIM today: contractors who must prove programme logic and logistics before mobilising, cost consultants and commercial teams asked to price revisions within days rather than weeks, and clients and lenders who expect visual progress and reliable cost forecasts. A contractor that links its schedule and estimate to project geometry sees sequence conflicts early and quantifies change quickly; one that keeps them apart reconciles three versions of the truth every month. The course draws on earned value management EVM, location-based planning and the cost-loaded critical path method CPM, applied to object-based project geometry.

## Who Gains Most from 4D and 5D BIM

- Planners who build construction sequences, logistics layouts and look-ahead schedules
- Cost engineers and estimators who extract quantities and price scope revisions
- Project controls leads who report earned value, forecasts and cash flow
- Digital construction managers who link scheduling and estimating platforms to object geometry
- Site managers who use visual sequences to brief trades and check progress

Contractors and project management consultancies gain most when their planning, estimating and project controls staff attend together and agree one linked baseline.

## 4D and 5D BIM Capabilities

Participants turn separate programmes, bills of quantities and site photographs into one cost-loaded, time-phased picture of the job.

- Build 4D sequences linking programme activities to geometry by zone — planning and logistics decisions
- Test crane, access and temporary works arrangements through simulation — site managers
- Calculate quantities from object geometry with classification-based cost mapping — estimators
- Apply cost loading and earned value to the linked baseline — project controls reporting
- Weigh design revisions by their time and cost effect — change approval panels

- Communicate progress and forecasts visually — clients, lenders and directors

## Key 4D and 5D BIM Terms

- 4D Simulation — a time-phased visual sequence created by linking programme activities to project geometry, used to test construction logic and logistics.
- 5D Cost Linking — the association of quantities and unit rates with project objects so that cost updates follow geometry changes.
- Quantity Take-Off — extraction of measurable lengths, areas, volumes and counts from object geometry for estimating and valuation.
- Cost-Loaded Schedule — a programme in which each activity carries budgeted cost, allowing time-phased cash flow and earned value.
- Earned Value — the budgeted cost of work actually completed, compared with planned value and actual cost to measure performance.
- Location Breakdown Structure — division of a project into zones, levels or chainages that organise sequences, quantities and progress.

## 4D and 5D BIM Day by Day

## Day 1: Project Controls in a Digital Delivery Context

- Planning, Estimating and Controls Silos — Diagnosing Where Linked Workflows Pay Back
- 4D and 5D Maturity Levels — Setting Realistic Ambitions for Each Project
- Contractor Use Cases in Buildings and Infrastructure — Selecting Priority Applications
- Platform Landscape for Scheduling and Estimating Links — Choosing Interoperable Software
- Roles Between Planners, Estimators and Digital Leads — Assigning Linking Responsibilities

## Day 2: Preparing Geometry for Time and Cost

- Object Classification for Scheduling and Costing — Mapping Elements to Activities and Rates
- Location Breakdown Structures — Splitting Geometry by Zone, Level and Pour
- Geometry Readiness Checks — Confirming Objects Carry Quantities and Codes
- Temporary Works and Site Objects — Adding Cranes, Hoardings and Laydown Areas
- Federated Views for Sequencing — Combining Discipline Geometry Without Rework

## Day 3: 4D Sequencing Methods

- Activity-to-Object Linking Rules — Automating Links With Selection Sets
- Critical Path Logic in Visual Sequences — Exposing Unrealistic Programme Ties
- Location-Based Planning and Flowlines — Balancing Crew Movement Across Zones
- Look-Ahead and Short-Interval Schedules — Refreshing Sequences Weekly
- Animation Settings and Appearance Profiles — Making Sequences Readable for Trades

## Day 4: Logistics and Constructability Simulation

- Crane Coverage and Lift Planning — Testing Reach, Capacity and Swing Conflicts
- Site Access, Laydown and Traffic Routes — Phasing Logistics With the Sequence
- Temporary Works Sequencing — Timing Propping, Formwork and Scaffolding
- Time-Based Spatial Conflict Checks — Catching Trade Overlaps Before Mobilisation
- Safety Planning With Visual Sequences — Briefing Exclusion Zones and Hazards

## Day 5: Model-Based Quantities

- Quantity Take-Off Rules by Element Type — Matching Measurement Conventions
- Measurement Gaps and Manual Additions — Covering Scope the Geometry Omits
- Quantity Validation Against Drawings — Reconciling Discrepancies Before Pricing
- Infrastructure Quantities by Chainage — Measuring Earthworks and Linear Assets
- Quantity Change Comparison — Tracking Revisions Between Issues

## Day 6: 5D Cost Linking and Estimating

- Cost Breakdown Structure Mapping — Linking Objects to Cost Codes and Rates
- Unit Rate Libraries and Assemblies — Standardising Pricing Across Projects
- Estimate Versioning — Comparing Options and Value Engineering Alternatives
- Indirect Costs and Preliminaries in 5D — Pricing Time-Related Items
- Rapid Change Pricing — Quantifying Revisions for Variation Submissions

## Day 7: Cost-Loaded Schedules and Cash Flow

- Cost Loading of Programme Activities — Building the Time-Phased Budget
- S-Curves From Linked Baselines — Forecasting Cash Requirements
- Resource Histograms From Quantities — Checking Crew Feasibility
- Payment Valuation From Installed Objects — Supporting Interim Applications
- Baseline Freezing and Change Control — Protecting the Reference for Measurement

## Day 8: Progress Measurement and Earned Value

- Progress Capture From Site Photos and Laser Scans — Updating Installed Status
- Planned Versus Actual Visual Comparison — Showing Slippage to Directors
- Earned Value Indicators CPI and SPI — Measuring Cost and Schedule Performance
- Estimate at Completion Methods — Choosing Forecast Formulas for Each Package
- Delay Visualisation for Entitlement — Supporting Extension of Time Submissions

## Day 9: Decisions and Reporting

- Scenario Comparison of Sequences — Weighing Acceleration Against Cost
- Dashboard Design for Project Controls — Presenting Time and Cost Together
- Risk-Adjusted Forecasts — Combining Contingency With Linked Baselines
- Client and Lender Reporting Packs — Communicating Progress Visually
- Lessons Learned From 4D and 5D Use — Improving Templates for Future Bids

## Day 10: Practising the Project Controls Baseline

- Location Breakdown and Linking Set-Up for a Case Project — Applying Preparation Methods
- 4D Sequence and Logistics Test — Rehearsing Constructability Checks
- 5D Estimate and Change Pricing Exercise — Testing Cost Linking Workflows
- Earned Value Report From the Linked Baseline — Practising Monthly Controls
- 4D and 5D Project Controls Baseline — Completing the Contract-Ready Work Product

## Applying 4D and 5D BIM After the Course

- Build a 4D sequence for the next critical package on a live project and use it to brief trades at the weekly coordination meeting.
- Price the latest design revision through 5D cost linking and present its time and cost effect to the commercial manager.

## 4D and 5D BIM Questions FAQ

### What is 4D and 5D BIM and why does it matter now?

4D and 5D BIM links construction schedules and cost estimates to project geometry so teams can simulate sequences, extract quantities and price change. It matters now because contractors must forecast time and cost faster as clients expect visual progress and quick variation pricing.

### Which roles gain most from 4D and 5D BIM training?

Planners, cost engineers, estimators and project controls leads gain most, with digital construction and site managers close behind. Each uses linked sequences, quantities or earned value to make planning, pricing or reporting decisions on live contracts.

### How does 4D and 5D BIM training differ from a general BIM information management course?

4D and 5D BIM training concentrates on time and cost rather than information standards. An information management course covers requirements, common data environments and handover; this training covers sequencing, logistics simulation, quantity take-off, cost loading, earned value and forecasting.

### What do you bring back from 4D and 5D BIM training?

You bring back a 4D and 5D project controls baseline for a live contract, with linking rules, a logistics sequence, a cost-loaded schedule and an earned value report template your planning and commercial teams can reuse.

## 4D and 5D BIM: The Way Forward

The 4D and 5D project controls baseline first informs the mobilisation sequence and the approved budget for a live contract. Planners, estimators and project controls leads then use it for monthly earned value, cash flow and change pricing. After its first use, compare forecast and actual progress by zone and refine linking rules and rate libraries before the next bid.