JUPITER PRIME

Consulting • Training • Advisory

جوبيتر برايم للاستشارات والتدريب

COURSE BROCHURE

Advanced Heavy Lift and Module Transportation Engineering Training Course

1 – 12 March 2027
Dar es Salaam

Advanced Heavy Lift and Module Transportation Engineering Training Course

Ref: 1224_46028 **Date:** 1 – 12 March 2027 **Location:** Dar es Salaam **Fees:** 14000 GBP

Heavy Lift and Module Transportation Engineering is a 2-week advanced training course for lifting engineers, construction managers and logistics planners that ends with an Integrated Lift and Transport Execution Plan for one plant module. Modular construction now moves ever larger units from fabrication yard to site, so one weak link in a crane study, trailer configuration or sea fastening can stop a project. Jupiter Prime Training approaches heavy lift and module transportation engineering as one chain from yard to final setting.

Why Heavy Lift and Module Transportation Engineering Matters Now

Three pressures shape this field today: owners shifting work to fabrication yards to cut site hours, insurers and marine warranty surveyors demanding documented engineering for every critical move, and tight construction schedules where a delayed lift ripples through commissioning. A project that engineers each lift, road move and sea voyage as one sequence protects people, cargo and the critical path. One that treats them as separate subcontracts invites gaps at handover points. The course draws on recognised lift planning practice, crane load chart interpretation, marine warranty principles and project risk assessment methods used across energy and infrastructure projects.

Who Gains Most from Heavy Lift and Module Transportation Engineering

- Engineers who prepare lift studies, rigging calculations and crane configurations
- Construction leads who sequence module arrivals, setting and hook-up
- Logistics planners responsible for route surveys, permits and transport schedules
- Marine specialists who plan load-out, sea fastening and voyage criteria
- Site safety leads who approve critical lift plans and exclusion zones

Project teams that send lifting, construction and logistics members together gain most, because the handover between yard, road, sea and site is then designed by one group.

Heavy Lift and Module Transportation Engineering Capabilities

Participants turn a module weight report into a crane, trailer and vessel plan whose every step is checked against capacity and ground limits.

- Specify crane type, configuration and radius from load charts and weight data — crane hire decisions
- Design rigging arrangements with spreader bars, slings and lift points — fabrication and procurement teams
- Calculate ground bearing pressure and mat requirements — civil works and site preparation
- Build SPMT and trailer configurations with stability and axle load checks — route approval
- Assess load-out, sea fastening and voyage motion cases — marine warranty acceptance

- Communicate critical lift plans and risk controls to site crews — permit to work authorities

Key Heavy Lift and Module Transportation Engineering Terms

- Lift study — An engineered document setting crane, rigging, load, radius, ground conditions and sequence for a specific lift.
- Dynamic amplification factor — A multiplier applied to static load to cover motion and impact effects during lifting or transport.
- Self-propelled modular transporter SPMT — A computer-controlled multi-axle platform vehicle used to move and position very heavy modules.
- Ground bearing pressure — The load per unit area a crane outrigger or track imposes on the ground beneath it.
- Load-out — The transfer of a module from quay or yard onto a barge or vessel by skidding, trailers or lifting.
- Sea fastening — The structural restraints that hold cargo to a deck against vessel motions during a voyage.

Heavy Lift and Module Transportation Engineering Day by Day

Day 1: The Modular Construction Landscape

- Stick-Built Versus Modular Execution Strategies — Module Size Limits
- Yard-to-Site Logistics Chain Mapping — Handover Point Risks
- Weight Control Reports and Centre of Gravity — Design Margins
- Lifting and Transport Roles and Responsibilities — Accountability Matrix
- Project Examples from Refining and Power Plants — Lessons from Past Moves

Day 2: Crane Types and Capacity

- Crawler, Mobile, Ring and Gantry Cranes — Crane Selection Criteria
- Load Chart Interpretation and Deductions — Usable Capacity
- Tandem and Multi-Crane Lifts — Load Share Control
- Wind Limits and Weather Windows — Lift Go or No-Go
- Crane Assembly Space and Access — Site Layout Decisions

Day 3: Rigging Design

- Sling Angle and Tension Calculations — Sling Size Selection
- Spreader Bars and Lifting Beams — Load Path Control
- Lifting Lugs and Trunnions — Fabrication Weld Requirements
- Shackles, Hooks and Hardware Ratings — Rigging Inventory Checks
- Tailing and Upending Operations — Vessel and Column Erection

Day 4: Ground and Foundation Checks

- Soil Investigation Data for Crane Pads — Bearing Capacity Estimates
- Outrigger and Track Pressure Calculations — Mat and Plate Sizing
- Buried Services and Voids — Exclusion and Bridging Measures
- Temporary Works Design for Crane Platforms — Civil Approval
- Settlement Monitoring During Lifts — Stop Criteria

Day 5: Preparing the Lift Study

- Lift Categorisation and Critical Lift Thresholds — Approval Level
- Lift Drawings with Radius and Clearance Envelopes — Clash Avoidance
- Rigging and Crane Utilisation Summary — Margin Verification
- Lift Sequence and Hold Points — Site Execution Control
- Risk Assessment and Method Statement — Permit to Work Basis

Day 6: Road Transport and SPMT Operations

- Route Surveys and Swept Path Analysis — Obstruction Removal
- SPMT and Trailer Configuration Selection — Axle Line Count
- Stability Checks and Tipping Angles — Hydraulic Grouping Choices
- Bridge and Culvert Load Assessments — Route Approval
- Night Moves, Escorts and Traffic Plans — Community Interface

Day 7: Load-Out and Marine Transport

- Skidding, Trailer and Lift-On Load-Out Methods — Method Selection
- Ballast Planning During Load-Out — Tide and Quay Level Control
- Barge and Heavy Transport Vessel Selection — Deck Strength Checks
- Voyage Motion Criteria and Weather Routing — Design Sea State
- Marine Warranty Survey Requirements — Certificate of Approval Inputs

Day 8: Sea Fastening and Offshore Setting

- Sea Fastening Design Loads — Brace and Stopper Sizing
- Grillage Design and Deck Load Spreading — Local Strength Checks
- Offshore Lifting with Crane Vessels — Dynamic Lift Considerations
- Float-Over Installation Concepts — Topsides Setting Options
- Discharge and Removal of Sea Fastening — Arrival Sequence

Day 9: Risk, Contracts and Interfaces

- Hazard Identification for Lift and Transport — Barrier Selection
- Contingency Planning for Weather and Breakdown — Standby Resources
- Heavy Lift Contract Scopes and Liabilities — Subcontract Boundaries
- Interface Registers Between Yard, Carrier and Site — Handover Sign-Off
- Lift Readiness Reviews — Final Go Decision

Day 10: Practising the Integrated Lift and Transport Execution Plan

- Module Data and Crane Selection for a Case — Applying Capacity Checks
- Rigging and Ground Bearing Design — Applying Calculation Methods
- SPMT Route and Load-Out Plan — Applying Transport Checks
- Sea Fastening and Voyage Case — Applying Marine Criteria
- Integrated Lift and Transport Execution Plan — Sequence, Risks and Approvals

Applying Heavy Lift and Module Transportation Engineering After the Course

- Audit one upcoming critical lift study against load chart deductions, rigging utilisation and ground bearing checks, and record any gaps.
- Map the handover points for the next module move from yard to site and assign an owner to each interface.

Heavy Lift and Module Transportation Engineering Questions FAQ

What is heavy lift and module transportation engineering, and why does it matter now?

It is the engineering of crane lifts, road moves and sea transport for large plant modules. It matters now because modular construction is moving bigger units, and one weak step in rigging, ground or sea fastening can halt a whole project.

Which roles gain most from heavy lift and module transportation engineering skills?

Lifting engineers, construction managers and logistics planners gain most. Marine specialists and site safety leads also benefit, because they approve load-out, voyage and critical lift plans that depend on the same weight and capacity data.

How does a heavy lift and module transportation engineering course differ from a rigging and slinging course?

It works at engineering and planning level rather than hands-on rigging. You prepare lift studies, ground checks, SPMT configurations and sea fastening cases, while a rigging and slinging course trains crews to attach and handle loads safely.

What do you bring back from heavy lift and module transportation engineering training?

You bring back an execution plan for a case module. It joins crane selection, rigging, ground bearing, road transport, load-out and sea fastening into one sequence with risks and approval points.

Heavy Lift and Module Transportation Engineering: The Way Forward

The Integrated Lift and Transport Execution Plan gives construction and logistics leads one sequence from fabrication yard to final setting. Its first use is often the crane hire or transport contract decision, read by project managers and marine warranty surveyors. After that first move, revisit the interface register, because most lessons appear at the handovers between yard, carrier and site.