

# Mobile Lifting Equipment Operation and Maintenance

## INTRODUCTION

- This interactive, applications-driven 5-day Mobile Lifting Equipment Operation and Maintenance training seminar will highlight the added value that Mobile Lifting Equipment Operation and Maintenance can offer to support engineers and technicians working in heavy transportation and lifting, petroleum industries, and construction projects. It will show how to safely use such equipment economically, safely and environment friendly.
- This Mobile Lifting Equipment Operation and Maintenance training seminar will emphasize the application of related recommended operation and maintenance practices advised by the most reputable manufacturers of such equipment and by the relevant standards, focus on proper equipment selection for specific jobs, retrieval and interpretation of data from equipment manuals.

This training seminar will feature:

- Discussions on the types and applications of modern mobile lifting equipment including truck cranes and forklifts
- The importance of correct selection of lifting equipment for specific jobs
- The detailed description of lifting equipment systems and characteristic performance
- Focusing on standard safety measures to be applied on operating various lifting equipment

## OBJECTIVES

By the end of this training seminar, participants will be able to:

- Outline the basics of lifting equipment safety
- List the types and applications of mobile lift equipment including forklifts and mobile cranes
- Outline the types and applications of mobile lifting equipment
- Discuss the issues of forklifts and truck cranes stability
- Describe the principle of operation of various stability monitoring systems used in modern forklifts and truck cranes
- List and explain the application of forklift attachments and the lifting tackles
- Inspect the lifting tackles including wire ropes, synthetic slings, clips, hooks, sockets, eyebolts, and hoist rings
- Apply a standard inspection procedure on truck cranes and write the relevant report
- Explain how to maintain the forklifts and truck cranes

## TRAINING METHODOLOGY

- This Mobile Lifting Equipment Operation and Maintenance training seminar will utilise a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. The daily training seminar sections will be highly interactive and participative. It also involves detailed discussions accompanying the presentation of videos showing the up-to-date technology in mobile cranes, load lifting safety, and mobile cranes maintenance and inspection. Delegates are strongly encouraged to bring and analyse data from their own work domain; this adds greater relevancy to the content.

## ORGANISATIONAL IMPACT

When a company sends their employees to attend this particular training seminar, it expects that they will:

- Update their knowledge to be able to participate effectively in managing change
- Add to their experience a set of skills that reflect positively on organization activities and reputation
- Work more efficiently in a team
- Enhance their ability to act properly in hazardous situations
- Contribute actively in organization H&S issues

## PERSONAL IMPACT

When a company employee attends this particular training seminar, he/she expects to:

- Be aware of his job-related recent technical developments
- Add a set of skills to his career profile
- Improve his daily performance and work efficiency
- Be more able to take proper decisions in daily work problem solving
- Enhance his self-learning ability

## WHO SHOULD ATTEND?

This training seminar is suitable to a wide range of professionals but will greatly benefit:

- Load Lifting Engineers and Supervisors
- Mobile Cranes Operators
- Mobile Cranes Maintenance Engineers and Technicians
- Mobile Cranes Inspectors
- Load Lifting Safety Engineers and Professionals

## Course Outline

### Load Lifting Equipment Basics

- Load Lifting Safety Standards
- Load Lifting Certification
- Load Lifting Basics: Preparatory work and calculations – selection of equipment and lifting tackles – load hitching - loads hanging – load moving and signalling – Load positioning or stacking
- Qualifications and Skills of Lifting Equipment Operators

### Lifting Tackles

- Wire Ropes
- Types and Classification – Construction – Grades – Lays - Safety factor – Sizing – Aging – Maintenance – Safety precautions – Inspection
- Rigging Slings
- Working Load Limit (WLL) - Hitches (Single – Bridle – Basket – Choker - Applications) - Synthetic slings (Types – Grades - Applications) - Sling Tables and Sling Leg Load - Unequal Sling Lengths and Centre of Gravity - Sling Shock Load
- Clips and Schackles
- Standards - Wire Rope Clips Types (U bolt – fist grip) - Clips Number and Installation - Types of Schackles (Screw Anchor – Chain Anchor - Schackle Rules - Schackles for Synthetic Slings)

## Forklift Operation and Maintenance

- Forklift Types (Stand up rider – Sit down rider – Motorized hand pallet jack – Rough terrain)
- Forklift Layout and Components
- Forklift Stability and Modern Stability Monitoring Systems
- Forklift Operating Hazards
- Forklift Operations (Pre-operation checks – Picking up the load – Travelling with load – load placement – Moving on ramps – Crossing railroads – Parking)
- Forklift Hazards
- Forklift Attachments (Side shifters – carton clamp – Drum rotator – Paper roll clamp – bar arm clamp – pallet handler – Pull and push)
- Forklift Safety Standards

## Mobile Truck Cranes

- Types of Mobile Crane
- Telescopic Boom (Rough terrain - Carry deck – Pick& carry – Carrier mounted – Crawler – Truck mounted)
- Lattice Boom (Carrier mounted – Crawler – Truck mounted – Long reach)
- Mobile Crane Identification
- Mobile Crane Layout and Components
- Load Charts
- Reeving Load Blocks
- Mobile Crane Stability and Operation Quadrants
- Mobile Crane Operation
- Pre-lift Operations (Selection of proper crane - Critical lift criteria and preparation Boom length & radius & angle – Ground bearing capacity checking – Load and Rigging – Environment conditions – Selection of operator and signalling person – Lift plan checklist – Lift plan drawing – Site preparation)
- Safe Operating Procedure (crane levelling – load rigging – load lifting – load moving – load positioning)
- Data Hazard Sheet
- Safety Systems

## Maintenance and Inspection of Mobile Lifting Equipment

### Mobile Cranes Maintenance

- Basics of Mechanical Maintenance
- Pre-delivery Maintenance of Mobile Cranes
- In-service Maintenance Intervals and Operations
- Maintenance Personnel Qualification and Skills
- Maintenance Information and Records

## Inspection

- Crane Data
- Crane Manual and Records
- Pre-inspection Operations
- Crane Set-up
- Load Charts
- Crane Inspection Components
- Assessment of Crane Condition