

Mobile Crane Operations

L1 MOBILE CRANE OPERATIONS



LEVEL 1

Curriculum Notes

- 170 Hours
- Includes 75 hours of Core, which is a prerequisite for Level 1 completion and must be purchased separately. For more information, please refer to page 9 of the full Curriculum Catalog or visit www.nccer.org/catalog.
- Updated in 2018.
- Downloadable instructor resources that include module tests, PowerPoints®, and performance profile sheets are available at www.nccer.org/irc.

PAPERBACK

Trainee Guide: \$69.99

ISBN

978-0-13-473825-3

MODULES

The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

Orientation to the Trade (5 Hours)

ISBN 978-0-13-518809-5

(Module ID 21101) Provides an overview of the entire course and highlights the duties and responsibilities of a mobile crane operator. Discusses ASME B30.5 and 29 CFR 1926, Subpart CC, as well as crane operator certification.

Basic Principles of Cranes (15 Hours)

ISBN 978-0-13-498816-0

(Module ID 21102) Introduces mobile crane equipment with an in-depth discussion of terminology and nomenclature. Explains the basic scientific principles associated with mobile crane operation.

Rigging Practices (15 Hours)

ISBN 978-0-13-498801-6

(Module ID 38102; from *Basic Rigger*) Describes basic rigging and safety practices related to rigging activities. Describes the use and inspection of equipment and hardware used in rigging. Explains how to apply common hitches. Covers jacks and hoisting equipment.

Crane Communications (10 Hours)

ISBN 978-0-13-498800-9

(Module ID 53101; from *Signal Person*) Describes the communication process between the signal person and the crane operator. Covers electronic communications as well as the standard hand signals in 29 CFR 1926.

Crane Safety and Emergency Procedures (25 Hours)

ISBN 978-0-13-498819-1

(Module ID 21106) Covers safety standards and best safety practices relevant to the operation of cranes. Describes safety considerations related to power lines, weather conditions, and specific crane functions.

Operating a Crane (25 Hours)

ISBN 978-0-13-498736-1

(Module ID 21105) Describes preparations and considerations prior to lifting operations. Provides an opportunity to become familiar with the operation of a crane and the functions of its controls.

L2 MOBILE CRANE OPERATIONS

LEVEL 2

Curriculum Notes

- 145 Hours
- Updated in 2018.
- Downloadable instructor resources that include module tests, PowerPoints®, and performance profile sheets are available at www.nccer.org/irc.

PAPERBACK

Trainee Guide: \$99.99

ISBN

978-0-13-473824-6

MODULES

The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

Machine Power Flow (15 Hours)

ISBN 978-0-13-498798-9

(Module ID 21202) Discusses the power systems that enable cranes to perform. Discusses diesel and gasoline/propane engines and electrical/motor-generator, as well as mechanical, electrical, pneumatic, and hydraulic power systems.

Computer Aids/Operator Aids (20 Hours)

ISBN 978-0-13-498796-5

(Module ID 21205) Provides information on load moment indicators, anti-two-block devices, load indicators, and other operator aids that are installed in cranes. Describes input devices associated with these operator aids and the information they provide.

Wire Rope (25 Hours)

ISBN 978-0-13-498794-1

(Module ID 21204) Covers the components of wire rope and inspection requirements and procedures for wire rope, load blocks, and sheaves. Explains proper installation of wire rope, maintenance guidelines, and end terminations and preparations.

Mobile Crane Maintenance and Inspections

(25 Hours)

ISBN 978-0-13-498792-7

(Module ID 21203) Covers the types of inspections typically performed on mobile cranes. Describes service requirements for crane maintenance.

Load Dynamics (17.5 Hours)

ISBN 978-0-13-498789-7

(Module ID 21206) Covers leverage, forward and backward stability, operational quadrants, submerged lifts, non-centered lifts, and other forces that affect stability.

Transporting Requirements (17.5 Hours)

ISBN 978-0-13-498787-3

(Module ID 21308) Discusses the proper handling, loading and unloading, and securing procedures for mobile cranes and their components. Presents information on driver requirements and procedures for securing the mobile crane for transporting.

On-Site Equipment Movement (25 Hours)

ISBN 978-0-13-498785-9

(Module ID 21207) Covers site hazards and restrictions that could hinder on-site crane movement; safety considerations involved in crane movement over unlevel ground; pick-and-carry operations; and power line contact. Also addresses flotation capacity.

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L3 MOBILE CRANE OPERATIONS

LEVEL 3

Curriculum Notes

- 145 Hours
- Updated in 2018.
- Downloadable instructor resources that include module tests, PowerPoints®, and performance profile sheets are available at www.nccer.org/irc.

PAPERBACK

Trainee Guide: \$99.99

ISBN

978-0-13-518502-5

MODULES

The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

Load Charts (35 Hours)

ISBN 978-0-13-518590-2

(Module ID 21301) Discusses the importance of load charts and charts that apply to different configurations. Includes on-rubber, on-outrigger, jib, and deduction charts, as well as range diagrams and operational notes. Covers parts of line and capacity calculations.

Lift Planning (30 Hours)

ISBN 978-0-13-518591-9

(Module ID 21304) Discusses lift plan implementation, including reference information, calculations, single- and multiple-crane lifting, critical lifts, and engineering considerations.

Telescopic Boom Attachment Setup and Assembly

(20 Hours)

ISBN 978-0-13-518668-8

(Module ID 21302) Covers the setup and stowing of swing-away extensions and various jibs, as well as the assembly of intermediate boom sections, on telescopic cranes. Includes the description and operating characteristics of manual and power luffing jibs.

Lattice Boom Assembly and Disassembly

(20 Hours)

ISBN 978-0-13-518670-1

(Module ID 21306) Identifies lattice-boom components and provides pre-/post-assembly considerations. Provides step-by-step guidance in the assembly and disassembly of lattice booms.

Hoisting Personnel (20 Hours)

ISBN 978-0-13-518673-2

(Module ID 21305) Examines ASME B30.23 and 29 CFR 1926.550(g) requirements while presenting advanced operation techniques for hoisting personnel.

Advanced Operational Techniques (20 Hours)

ISBN 978-0-13-518675-6

(Module ID 21303) Covers multi-crane lifts, critical lifts, blind lifts, and demolition. Includes sections on how to use magnet and vacuum lifting devices and how to operate a mobile crane in cold weather.