



Heavy Equipment Operations

L1 HEAVY EQUIPMENT OPERATIONS

LEVEL 1



Curriculum Notes

- 165 Total hours (Includes 72.5 hours of Core Curriculum which is a prerequisite for completion and must be purchased separately. See p. 10 for ordering information.)
- Revised: 2012, Third Edition
- Trainee Guide and trainee modules are in full color.
- Instructor's Guide includes access code to download TestGen software, module exams, and performance profiles from www.nccerirc.com.

PAPERBACK ISBN

Trainee Guide: \$65 **978-0-13-292142-8**
 Instructor's Guide: \$65 **978-0-13-292166-4**

NCCERconnect **NEW!**

See page 8 for details. ISBN

Trainee Guide Paperback
 + Access Card Package: \$90 **978-0-13-303356-4**

IG Paperback
 + Access Card Package: \$65 **978-0-13-298645-8**

Access Card ONLY for Trainee Guide: \$65
 (does not include print book) **978-0-13-302107-3**

ELECTRONIC Access Code ONLY for Trainee Guide: \$65
 (must be ordered electronically via OASIS;
 does not include print book) **978-0-13-302236-0**

Product Supplements

PowerPoint® Presentation Slides (in color)
 ISBN 978-0-13-292167-1 **\$40**

MODULES

All of the modules listed below are included in the Trainee and Instructor Guide(s) listed above. The following ISBN and pricing information is for ordering individual modules only.

Orientation to the Trade (5 Hours)

Trainee \$19 **ISBN 978-0-13-292305-7**
 Instructor \$19 **ISBN 978-0-13-292312-5**
 (Module ID 22101-12) Provides an overview of heavy equipment terminology, operations, operator responsibilities, career opportunities, and basic principles of safety.

Heavy Equipment Safety (10 Hours)

Trainee \$19 **ISBN 978-0-13-292306-4**
 Instructor \$19 **ISBN 978-0-13-292313-2**
 (Module ID 22102-12) Provides a comprehensive overview of safety requirements on job sites with emphasis on OSHA, MSHA, and NIOSH requirements. Presents basic requirements for personal protection, safe equipment operations and maintenance, and HAZCOM.

Identification of Heavy Equipment (5 Hours)

Trainee \$19 **ISBN 978-0-13-292307-1**
 Instructor \$19 **ISBN 978-0-13-292314-9**
 (Module ID 22103-12) Introduces the eleven most used pieces of heavy equipment. Describes the functional operation and uses for each piece of equipment, along with a general description of heavy equipment drive and hydraulic systems.

Basic Operational Techniques (27.5 Hours)

Trainee \$19 **ISBN 978-0-13-292308-8**
 Instructor \$19 **ISBN 978-0-13-292315-6**
 (Module ID 22104-12) Covers prestart checks of a machine's hardware (frame, body panels, tires or tracks, and safety equipment), driveline components, hydraulic system components, electrical components and controls. Reviews machine safety issues. Explains how to safely start, move, steer, stop, and shut down different types of machines.

Utility Tractors (17.5 Hours)

Trainee \$19 **ISBN 978-0-13-292309-5**
 Instructor \$19 **ISBN 978-0-13-292316-3**
 (Module ID 22105-12) Covers operation of general utility tractors in the construction industry. Describes duties and responsibilities of the operator, safety rules for operation, the attachment of implements, and basic preventive maintenance practices.

Introduction to Earthmoving (12.5 Hours)

Trainee \$19 **ISBN 978-0-13-292310-1**
 Instructor \$19 **ISBN 978-0-13-292317-0**
 (Module ID 22201-12) This module provides a broad introduction to the process of planning and executing earth moving activities on various types of construction projects. The use of heavy equipment such as bulldozers, scrapers, excavators, and loaders is explained.

Grades, Part One (15 Hours)

Trainee \$19 **ISBN 978-0-13-292311-8**
 Instructor \$19 **ISBN 978-0-13-292319-4**
 (Module ID 22106-12) Introduces the concept of preparing graded surfaces using heavy equipment. Covers identification of construction stakes and interpretation of marks on each type of stake. Describes process for grading slopes.

L2 HEAVY EQUIPMENT OPERATIONS

LEVEL 2

Curriculum Notes

- 167.5 Hours
- To Be Revised: Spring 2013
- Trainee Guide and trainee modules are in full color.
- Instructor's Resource Card includes an access code to download detailed lesson plans, module exams, performance profiles and TestGen software.

PAPERBACK ISBN

Trainee Guide: \$94 **978-0-13-340251-3**
 Instructor's Resource Card: \$94 **978-0-13-340383-1**
 (also includes NCCERconnect access)

NCCERconnect **NEW!**

See page 8 for details. ISBN

Trainee Guide Paperback
 + Access Card Package: \$90 **978-0-13-340937-6**

Access Card ONLY for Trainee Guide: \$65
 (does not include print book) **978-0-13-340377-0**

ELECTRONIC Access Code ONLY for Trainee Guide: \$65
 (must be ordered electronically via OASIS;
 does not include print book) **978-0-13-340438-8**

MODULES

All of the modules listed below are included in the Trainee and Instructor Guide(s) listed above. The following ISBN and pricing information is for ordering individual modules only.

On-road Dump Trucks (20 Hours)

Trainee \$19 **ISBN 978-0-13-340319-0**
 Instructor \$19 **ISBN 978-0-13-340329-9**
 (Module ID 22202-13) Covers uses, inspection, startup, shutdown, operator maintenance, and operation of dump trucks used to carry loads on public highways. Includes operation of dump trucks in normal and emergency situations.

Scrapers (17.5 Hours)

Trainee \$19 **ISBN 978-0-13-340320-6**
 Instructor \$19 **ISBN 978-0-13-340330-5**
 (Module ID 22204-13) Describes the types of scrapers used in site preparation, as well as the safe practices associated with the operation of scrapers. Covers operator inspection and maintenance requirements, along with startup, shutdown, and operating techniques.



Heavy Equipment Operations Level 2 (continued)

Loaders (17.5 Hours)

Trainee \$19 ISBN 978-0-13-340321-3
 Instructor \$19 ISBN 978-0-13-340331-2
 (Module ID 22205-13) Covers the uses of wheel and track loaders, as well as operator maintenance, loader safety, and operating procedures. Includes procedures for using loaders in excavation, grading, and demolition work.

Rough Terrain Forklifts (22.5 Hours)

Trainee \$19 ISBN 978-0-13-340322-0
 Instructor \$19 ISBN 978-0-13-340333-6
 (Module ID 22206-13) Covers the uses of forklifts on construction sites. Includes instructions for lifting, transporting, and placing various types of loads, as well as safety, operation, and maintenance procedures.

Excavation Math (17.5 Hours)

Trainee \$19 ISBN 978-0-13-340323-7
 Instructor \$19 ISBN 978-0-13-340334-3
 (Module ID 22207-13) Covers basic math skills required for site excavation work. Includes methods and practice in calculating the areas and volumes of various geometric shapes, as well as formulas and methods used to calculate cut and fill requirements on a job.

Interpreting Civil Drawings (20 Hours)

Trainee \$19 ISBN 978-0-13-340325-1
 Instructor \$19 ISBN 978-0-13-340335-0
 (Module ID 22209-13) Explains how to read site plans to calculate cut and fill requirements. Provides instruction and practice in interpreting both roadway and construction site drawings used for excavation and grading work.

Site Work (20 Hours)

Trainee \$19 ISBN 978-0-13-340326-8
 Instructor \$19 ISBN 978-0-13-340336-7
 (Module ID 22210-13) Expands on information covered in Level 1 in relation to setting and interpreting grade stakes. Also provides information and instructions on controlling surface water and ground water on a job site, as well as the layout of foundations and laying of pipe.

Skid Steers (22.5 Hours)

Trainee \$19 ISBN 978-0-13-340327-5
 Instructor \$19 ISBN 978-0-13-340337-4
 (Module ID 22212-13) Describes the many uses of skid steers and the attachments available for these machines. Covers safety practices, as well as inspection, startup, shutdown, and operation of skid steers.

Soils (10 Hours)

Trainee \$19 ISBN 978-0-13-340328-2
 Instructor \$19 ISBN 978-0-13-340338-1
 (Module ID 22308-13) Describes soil classification systems and explains how shrink and swell factors affect equipment selection. Discusses how soil conditions affect equipment performance and explains techniques for working with various types of soils.

LEVEL 3 HEAVY EQUIPMENT OPERATIONS

LEVEL 3

Curriculum Notes

- 203.5 Hours
- Revised: 2006, Second Edition
- Instructor's Guide includes access code to download TestGen software, module exams, and performance profiles from www.nccerirc.com.
- A full-color revision is underway and due in stock Fall 2013.

PAPERBACK

ISBN

Trainee Guide: \$94 **978-0-13-227254-4**
 Instructor's Guide: \$94 **978-0-13-227256-8**

Product Supplements

PowerPoint® Presentation Slides (in color)
 ISBN 978-0-13-229125-5 **\$40**

MODULES

All of the modules listed below are included in the Trainee and Instructor Guide(s) listed above. The following ISBN and pricing information is for ordering individual modules only.

Introductory Skills for the Crew Leader

(16 Hours)

Trainee \$40 ISBN 978-0-13-103593-5
 Instructor \$40 ISBN 978-0-13-103594-2

(Module ID 22301-06) Covers basic project planning and scheduling techniques as well as coordination and communication of work assignments to heavy equipment operators and other trades and crafts. Also describes project setup and materials purchasing requirements.

Dozers (30 Hours)

Trainee \$19 ISBN 978-0-13-228935-1
 Instructor \$19 ISBN 978-0-13-228979-5

(Module ID 22302-06) Covers the uses, attachments, operating controls, maintenance requirements, transporting procedures, and operating methods for dozers, emphasizing safe operation of the equipment. Teaches dozing operations, including clearing land, backfilling, and stockpiling. Explains the use of common attachments, including winches, rippers, specialty blades, and pulled attachments.

Backhoes (30 Hours)

Trainee \$19 ISBN 978-0-13-228936-8
 Instructor \$19 ISBN 978-0-13-228980-1

(Module ID 22303-06) Describes backhoes and their applications, attachments, operating controls, preventive maintenance requirements, and basic operating techniques, emphasizing safe operation of the equipment. Covers trenching, loading, demolition, backfilling, laying pipe, and excavating foundations. Also covers roading and transporting the backhoe.

Excavators (40 Hours)

Trainee \$19 ISBN 978-0-13-228937-5
 Instructor \$19 ISBN 978-0-13-228981-8

(Module ID 22304-06) Presents information on use, safe operation, and maintenance of hydraulic excavators, including standard and telescoping excavators. Teaches basic operation of equipment and application of knowledge in performing earthwork activities, such as ditching, grading, placing riprap, and slope finishing. Describes safety issues and preventive maintenance activities.

Motor Graders (40 Hours)

Trainee \$19 ISBN 978-0-13-228973-3
 Instructor \$19 ISBN 978-0-13-228983-2

(Module ID 22305-06) Introduces concepts and procedures involved in the operation of motor graders. Teaches basic daily preventive maintenance, safety checking, and control of the machine. Covers main attachments used with motor graders, and the use of motor graders in performing ditching, grading, ripping, and scarifying operations.

Advanced Operational Techniques (20 Hours)

Trainee \$19 ISBN 978-0-13-228975-7
 Instructor \$19 ISBN 978-0-13-228984-9

(Module ID 22306-06) Presents advanced topics for equipment operators, including safety, controlling and working around water, calculating operating costs, and laying pipe. Discusses safety meetings, reporting, inspections, investigations, and hazardous material requirements. Describes the use, calibration, and maintenance of laser instruments.

Finishing and Grading (20 Hours)

Trainee \$19 ISBN 978-0-13-228976-4
 Instructor \$19 ISBN 978-0-13-228985-6

(Module ID 22307-06) Describes the use of various types of heavy equipment to finish and trim grades and slopes of roads, pads, ditches, and other structures; specifications used for grading; and procedures for checking the final grade. Presents soil stabilization methods and the proper use of geotextile materials for erosion control.

Soils (7.5 Hours)

Trainee \$19 ISBN 978-0-13-228977-1
 Instructor \$19 ISBN 978-0-13-228986-3

(Module ID 22308-06) Describes soil classification systems. Explains how shrink and swell factors affect equipment selection. Discusses how soil conditions affect equipment performance. Explains techniques for working with various soil types.

Ordering information for *Heavy Equipment Operations Level 3, Third Edition*, due Fall 2013:

PAPERBACK

ISBN

Trainee Guide: \$94 **978-0-13-340256-8**
 Instructor's Resource Card: \$94 **978-0-13-340408-1**

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ISBN

Trainee Guide Paperback
 + Access Card Package: \$119 **978-0-13-340935-2**

Access Card ONLY for Trainee Guide: \$96
 (does not include print book) **978-0-13-340378-7**

ELECTRONIC Access Code ONLY for Trainee Guide: \$96
 (must be ordered electronically via OASIS;
 does not include print book) **978-0-13-340439-5**

