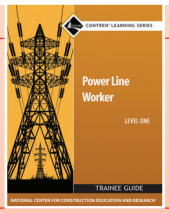
L1 POWER LINE WORKER



LEVEL 1

Curriculum Notes

- 407.5 Hours
  - Includes 97.5 hours of *Power Industry Fundamentals,* which is a prerequisite for Level One completion and must be purchased separately.
    - Hardcover: $79.99, ISBN 978-0-13-466829-1
- Published: 2011
- Downloadable instructor resources that include module tests, PowerPoints®, and performance profile sheets are available at www.nccer.org/irc.

PAPERBACK **ISBN**

Trainee Guide: $69.99 **978-0-13-257109-8**

MODULES

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

Power Line Worker Safety *(22.5 Hours)*
ISBN 978-0-13-266327-4
(Module ID 49102-11) Covers the safety equipment and safety practices associated with the special hazards of power line work, including electrical and arc flash hazards; traffic control; trenching; horizontal directional drilling; working in confined spaces; and safe entry into a substation.

Introduction to Electrical Circuits *(7.5 Hours)*
ISBN 978-0-13-266328-1
(Module ID 49103-11) Provides a general introduction to electricity and DC circuits, including theory of voltage, current and resistance, basic DC circuits, and Ohm's law. Also introduces the test equipment used in power line work.

Introduction to Electrical Theory *(7.5 Hours)*
ISBN 978-0-13-266329-8
(Module ID 49104-11) Describes how to calculate voltage, current, and resistance values in series, parallel, and combination DC circuits using Ohm's law. Also includes a basic description of grounding and bonding.

To address the need for one standardized and nationally recognized Power Line Worker curriculum, NCCER has developed *Power Line Worker Level One*. Common to transmission, distribution, and substation, *Power Line Worker Level One* addresses the fundamental aspects of power line work to include safety, electrical theory, climbing techniques, aerial framing and rigging, and operating utility service equipment. After Level One, the training program diverges into the three specialty areas (transmission, distribution, and substation) for two additional years of skills training.

Climbing Wooden Poles *(80 Hours)*
ISBN 978-0-13-266330-4
(Module ID 49105-11) Describes how to safely climb a wooden utility pole. Covers climbing equipment, inspection of equipment, pole inspection, climbing techniques, and pole-top rescue.

Climbing Structures Other Than Wood *(40 Hours)*
ISBN 978-0-13-266331-1
(Module ID 49106-11) Explains the equipment, safety practices, and climbing techniques required to climb towers. Hazards associated with the environment, such as snakes, birds, insects, and weather hazards, are also covered.

Tools of the Trade *(10 Hours)*
ISBN 978-0-13-266332-8
(Module ID 49107-11) Covers the specialized tools used by line workers, including hot sticks, as well as universal tool accessories. Also covers ladders and work platforms; crimpers; cable cutters; pneumatic tools; and powder-actuated tools.

Aerial Framing and Associated Hardware *(80 Hours)*
ISBN 978-0-13-266333-5
(Module ID 49108-11) Explains how to install guys to support a utility pole, as well as how to install the equipment on the pole to support conductors. Includes procedures for the installation of cross-arms, transformers, and conductors.

Utility Service Equipment *(15 Hours)*
ISBN 978-0-13-266334-2
(Module ID 49109-11) Provides descriptions and operations instructions for use of the digger derrick, bucket truck, crane truck, and aerial lift. Also covers safety requirements; inspection and maintenance; driving and setup operations; and emergency procedures.

Rigging *(12.5 Hours)*
ISBN 978-0-13-266335-9
(Module ID 49110-11) Explains how to select and use rigging equipment. Covers common rigging equipment and rigging methods that are likely to be used by power line workers. Also covers hand signals and other methods of communication between the rigger and the crane operator.

Setting and Pulling Poles *(20 Hours)*
ISBN 978-0-13-266336-6
(Module ID 49111-11) Provides instructions for the storage, loading, and transport of wooden utility poles. Includes use of the digger derrick to dig the hole and install the pole. Also covers pole removal using a hydraulic jacking device.

Trenching, Excavating, and Boring Equipment *(7.5 Hours)*
ISBN 978-0-13-266337-3
(Module ID 49112-11) Covers the use and maintenance of trenching equipment, backhoe/loaders, and horizontal directional drilling equipment for the installation of direct-buried power lines. Includes a review of safety guidelines related to buried utilities.

Introduction to Electrical Test Equipment *(7.5 Hours)*
ISBN 978-0-13-266338-0
(Module ID 49113-11) Introduces the basic test equipment used by electrical workers to test and troubleshoot electrical circuits. Also covers specialized line worker test equipment, including the high-voltage detector, phase rotation tester, megohmmeter, phasing stick, and hi-pot tester.

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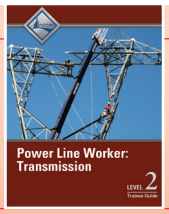
L2 POWER LINE WORKER: TRANSMISSION



LEVEL 2

Curriculum Notes

- 175 Hours
- Published: 2011
- Downloadable instructor resources that include module tests, PowerPoints®, and performance profile sheets are available at www.nccer.org/irc.

PAPERBACK	ISBN
Trainee Guide: $99.99	978-0-13-273033-4

MODULES

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

Alternating Current and Three-Phase Systems *(17.5 Hours)*
ISBN 978-0-13-274259-7
(Module ID 80201-11; from *Power Line Worker: Distribution Level Two*) Introduces the development of both single- and three-phase alternating current. Analyzes the relationship of AC phases and introduces key components used to refine AC power. Discusses the operation of transformers and introduces advanced AC concepts such as reactive power and the power factor.

Transmission Structure Rigging *(17.5 Hours)*
ISBN 978-0-13-296770-9
(Module ID 81201-11) Covers rigging equipment and practices specific to transmission structures. Coverage includes slings, crane stability, and the safe use of personnel platforms.

Transmission Structure Erection *(50 Hours)*
ISBN 978-0-13-274276-4
(Module ID 81202-11) Describes the erection requirements for various types of transmission structures, including steel towers, wood structures, and different types of poles. Covers general construction requirements, as well as right-of-way clearing, foundations, framing and erection, guying and anchoring, and grounding and bonding.

Transmission Equipment Installation *(50 Hours)*
ISBN 978-0-13-274277-1
(Module ID 81203-11) Focuses on the safe installation of insulators and conductors. Coverage includes stringing and splicing of conductors, conductor terminations, conductor sagging, clipping in, and the installation of accessories such as vibration dampers, spacers, warning lights, and day markers.

Transmission System Maintenance *(40 Hours)*
ISBN 978-0-13-274278-8
(Module ID 81204-11) Coverage includes safety practices related to working with helicopters, as well as inspection of insulators, towers, and poles. Discusses clearance procedures and environmental concerns such as protection of wetlands, waterways, and wildlife.

L3 POWER LINE WORKER: TRANSMISSION

LEVEL 3

Curriculum Notes

- 200 Hours
- Published: 2012
- Downloadable instructor resources that include module tests, PowerPoints®, and performance profile sheets are available at www.nccer.org/irc.

PAPERBACK	ISBN
Trainee Guide: $99.99	978-0-13-294867-8

MODULES

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

Construction, Maintenance, and Repair – Live-Line Barehand *(40 Hours)*
ISBN 978-0-13-296772-3
(Module ID 81301-12) Describes the methods used to work on live transmission lines by bonding to the line. Covers safety practices and PPE, and includes coverage of bonded buckets, non-conductive suits, insulated ladders, bonding jumpers, and rescue procedures.

Reconductoring Transmission Lines *(40 Hours)*
ISBN 978-0-13-296775-4
(Module ID 81302-12) Describes the replacement of existing transmission conductors as contrasted with installation of new conductors. Coverage includes pulling equipment setup, guard structures, and permit requirements. Includes live-line replacement as well as use of the existing conductors to pull the replacement conductors.

Construction, Maintenance, and Repair – Hot Stick *(80 Hours)*
ISBN 978-0-13-296774-7
(Module ID 81303-12) Covers tools such as hot sticks, shotgun sticks, and wire tongs, along with the PPE and safe work practices that are critical elements of live-line and bare-hand work. Includes coverage of live-line tasks such as replacing insulators, cross-arms, and spacers.

Lift Planning *(40 Hours)*
ISBN 978-0-13-266190-4
(Module ID 38302-11; from *Advanced Rigger, First Edition*) Discusses lift plan implementation, including reference information, calculations, single- and multiple-crane lifting, critical lifts, and engineering considerations.