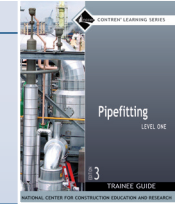


## L1 PIPEFITTING

LEVEL 1



### Curriculum Notes

- 152.5 Hours (Includes 72.5 hours of *Core Curriculum*, which is a prerequisite for Level 1 completion and must be purchased separately. See p. 11 for ordering information.)
- Revised: 2006, Third Edition
- Instructor's Guide includes access code to download TestGen software, module exams, PowerPoints®, and performance profile sheets from [www.nccerirc.com](http://www.nccerirc.com).
- A Spanish translation is available. Please see NCCER's online catalog for more information.

### PAPERBACK

### ISBN

Trainee Guide: \$67

978-0-13-227310-7

Instructor's Guide: \$67

978-0-13-227312-1

### MODULES

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

#### Orientation to the Trade (5 Hours)

Trainee \$20

ISBN 978-0-13-229020-3

Instructor \$20

ISBN 978-0-13-229027-2

(Module ID 08101-06) Provides an overview of work performed by the pipefitter, as well as the responsibilities, career opportunities, and safety principles associated with the pipefitting trade.

#### Pipefitting Hand Tools (20 Hours)

Trainee \$20

ISBN 978-0-13-229021-0

Instructor \$20

ISBN 978-0-13-229028-9

(Module ID 08102-06) Covers hand tool safety as well as procedures for selecting, inspecting, using, and maintaining hand tools used by pipefitters. Includes pipe wrenches, pipe stands, pipe vises, levels, pipe fabrication tools, pipe bending tools, and pipe joining tools.

#### Pipefitting Power Tools (15 Hours)

Trainee \$20

ISBN 978-0-13-229023-4

Instructor \$20

ISBN 978-0-13-229029-6

(Module ID 08103-06) Covers power tool safety as well as procedures for selecting, inspecting, using, and maintaining power tools used by pipefitters. Provides guidelines for using electrical and pneumatic tools, including pipe threading machines.

#### Oxyfuel Cutting (17.5 Hours)

Trainee \$20

ISBN 978-0-13-229024-1

Instructor \$20

ISBN 978-0-13-229031-9

(Module ID 08104-06) Explains the safety requirements for oxyfuel cutting. Identifies oxyfuel cutting equipment and provides instructions for setting up, lighting, and using the equipment. Explains how to perform straight line cutting, piercing, beveling, washing, and gouging.

#### Ladders and Scaffolds (12.5 Hours)

Trainee \$20

ISBN 978-0-13-229025-8

Instructor \$20

ISBN 978-0-13-229032-6

(Module ID 08105-06) Describes hazards and safety procedures governing the use of stepladders, extension ladders, fixed scaffolds, and rolling scaffolds. Includes general procedures for scaffold assembly and use.

#### Motorized Equipment (10 Hours)

Trainee \$20

ISBN 978-0-13-229026-5

Instructor \$20

ISBN 978-0-13-229033-3

(Module ID 08106-06) Explains the safety factors, operator maintenance, and operating procedures associated with motorized equipment used on job sites, including electrical generators, air compressors, aerial lifts, pumps, forklifts, and hydraulic cranes.

## L2 PIPEFITTING

LEVEL 2

### Curriculum Notes

- 162.5 Hours
- Revised: 2006, Third Edition
- Instructor's Guide includes access code to download TestGen software, module exams, PowerPoints®, and performance profile sheets from [www.nccerirc.com](http://www.nccerirc.com).

### PAPERBACK

### ISBN

Trainee Guide: \$97

978-0-13-227314-5

Instructor's Guide: \$97

978-0-13-227317-6

### MODULES

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

#### Piping Systems (5 Hours)

Trainee \$20

ISBN 978-0-13-613595-1

Instructor \$20

ISBN 978-0-13-613606-4

(Module ID 08201-06) Introduces chemical, compressed air, fuel oil, steam, and water systems. Explains how to identify piping systems according to color codes.

#### Drawings and Detail Sheets (15 Hours)

Trainee \$20

ISBN 978-0-13-613596-8

Instructor \$20

ISBN 978-0-13-613607-1

(Module ID 08202-06) Introduces plot plans, structural drawings, elevation drawings, as-built drawings, equipment arrangement drawings, P&IDs, isometric drawings, spool sheets, and detail sheets.

#### Identifying and Installing Valves (20 Hours)

Trainee \$20

ISBN 978-0-13-613598-2

Instructor \$20

ISBN 978-0-13-613608-8

(Module ID 08203-06) Identifies types of valves and describes their installation as well as proper storage and handling procedures.

#### Pipefitting Trade Math (15 Hours)

Trainee \$20

ISBN 978-0-13-613599-9

Instructor \$20

ISBN 978-0-13-613609-5

(Module ID 08204-06) Explains how to use ratios and proportions, solve basic algebra, area, volume, and circumference problems, and solve for right triangles using the Pythagorean theorem.

#### Threaded Pipe Fabrication (15 Hours)

Trainee \$20

ISBN 978-0-13-613600-2

Instructor \$20

ISBN 978-0-13-613610-1

(Module ID 08205-06) Describes the materials used in threaded piping systems. Explains how to determine pipe lengths between threaded pipe fittings, prepare the pipe and fittings for fit-up, and assemble the piping system.

#### Socket Weld Pipe Fabrication (25 Hours)

Trainee \$20

ISBN 978-0-13-613601-9

Instructor \$20

ISBN 978-0-13-613611-8

(Module ID 08206-06) Describes the materials used in socket weld piping systems. Explains how to determine pipe lengths between socket weld fittings, prepare the pipe and fittings for fit-up, and fabricate socket weld fittings.

#### Butt Weld Pipe Fabrication (37.5 Hours)

Trainee \$20

ISBN 978-0-13-613602-6

Instructor \$20

ISBN 978-0-13-613612-5

(Module ID 08207-06) Describes the materials used in butt weld piping systems. Explains how to determine pipe lengths between butt weld fittings, prepare the pipe and fittings for fit-up, and fabricate butt weld fittings. Also describes how to select and install backing rings, fabricate channel iron welding jigs, and use and care for welding clamps.

#### Excavations (10 Hours)

Trainee \$20

ISBN 978-0-13-613603-3

Instructor \$20

ISBN 978-0-13-613614-9

(Module ID 08208-06) Explains the use of shoring materials per OSHA standards. Covers shoring systems, installing a hydraulic vertical shore, determining the overall fall of a sewer line, setting the grade and elevation of a trench, and backfilling.

## Pipefitting Level 2 (continued)

### Underground Pipe Installation (20 Hours)

Trainee \$20 ISBN 978-0-13-613604-0  
 Instructor \$20 ISBN 978-0-13-613580-7  
 (Module ID 08209-06) Explains pipe installation procedures and guidelines, including the procedures for cast iron, ductile iron, concrete, carbon steel, fiberglass, and thermoplastic pipe. Includes an introduction to horizontal directional drilling for pipe installation.

<b>L3 PIPEFITTING</b>	
LEVEL 3	
<b>Curriculum Notes</b>	
<ul style="list-style-type: none"> <li>150 Hours</li> <li>Revised: 2007, Third Edition</li> <li>Instructor's Guide includes access code to download TestGen software, module exams, PowerPoints®, and performance profile sheets from <a href="http://www.nccerirc.com">www.nccerirc.com</a>.</li> </ul>	
<b>PAPERBACK</b>	<b>ISBN</b>
Trainee Guide: \$97	978-0-13-227284-1
Instructor's Guide: \$97	978-0-13-227286-5

### MODULES

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

#### Rigging Equipment (10 Hours)

Trainee \$20 ISBN 978-0-13-614662-9  
 Instructor \$20 ISBN 978-0-13-614636-0  
 (Module ID 08301-07) Describes the use and inspection of basic equipment and hardware used in rigging, including slings, wire rope, chains, and attaching hardware. Explains sling angles. Describes the use of tuggers, jacks, hoists, and come-alongs.

#### Rigging Practices (10 Hours)

Trainee \$20 ISBN 978-0-13-614663-6  
 Instructor \$20 ISBN 978-0-13-614638-4  
 (Module ID 08302-07) Describes basic rigging and crane hazards and related safety procedures. Provides an overview of personnel lifting and lift planning. Introduces crane load charts and load balancing. Includes instructions for rigging and lifting pipe.

#### Standards and Specifications (10 Hours)

Trainee \$20 ISBN 978-0-13-614664-3  
 Instructor \$20 ISBN 978-0-13-614674-2  
 (Module ID 08303-07) Explains how to read and interpret pipefitting standards, codes, and specifications. Describes how to identify pipe and components according to specifications.

#### Advanced Trade Math (25 Hours)

Trainee \$20 ISBN 978-0-13-614630-8  
 Instructor \$20 ISBN 978-0-13-614675-9  
 (Module ID 08304-07) Discusses the use of equivalent and conversion tables. Explains how to use right angle trigonometry to calculate take-outs.

### Motorized Equipment Two (10 Hours)

Trainee \$20 ISBN 978-0-13-614631-5  
 Instructor \$20 ISBN 978-0-13-614676-6  
 (Module ID 08305-07) Covers the applications and safety requirements of drain cleaners, personnel lifts, and cable lifts.

### Introduction to Aboveground Pipe Installation (20 Hours)

Trainee \$20 ISBN 978-0-13-614632-2  
 Instructor \$20 ISBN 978-0-13-614677-3  
 (Module ID 08306-07) Identifies various types of pipe, flanges, gaskets, and bolts. Includes step-by-step procedures for installing pipe sleeves and floor penetrations.

### Field Routing and Vessel Trim (15 Hours)

Trainee \$20 ISBN 978-0-13-614633-9  
 Instructor \$20 ISBN 978-0-13-614679-7  
 (Module ID 08307-07) Explains how to secure the work area and determine field run specifications, load weights for erection equipment, and support needs. Describes how to erect vessel trim.

### Pipe Hangers and Supports (25 Hours)

Trainee \$20 ISBN 978-0-13-614634-6  
 Instructor \$20 ISBN 978-0-13-614680-3  
 (Module ID 08308-07) Explains how to identify, select, and install pipe hangers and supports, including spring can supports.

### Testing Piping Systems and Equipment (20 Hours)

Trainee \$20 ISBN 978-0-13-614635-3  
 Instructor \$20 ISBN 978-0-13-614681-0  
 (Module ID 08309-07) Explains how to perform pretests, service flow tests, head pressure tests, hydrostatic tests, and steam blow tests.

<b>L4 PIPEFITTING</b>	
LEVEL 4	
<b>Curriculum Notes</b>	
<ul style="list-style-type: none"> <li>182.5 Hours</li> <li>Revised: 2007, Third Edition</li> <li>Instructor's Guide includes access code to download TestGen software, module exams, PowerPoints®, and performance profile sheets from <a href="http://www.nccerirc.com">www.nccerirc.com</a>.</li> </ul>	
<b>PAPERBACK</b>	<b>ISBN</b>
Trainee Guide: \$97	978-0-13-614429-8
Instructor's Guide: \$97	978-0-13-614430-4

### MODULES

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

#### Advanced Blueprint Reading (50 Hours)

Trainee \$20 ISBN 978-0-13-604786-5  
 Instructor \$20 ISBN 978-0-13-604762-9  
 (Module ID 08401-07) Introduces drawings used by pipefitters in the shop and in the field. Explains how to read and interpret P&IDs, general arrangement drawings, ISOs, and spool sheets. Included are step-by-step instructions for following a line of pipe through a set of drawings. Includes nine 11" x 17" drawings.

### Advanced Pipe Fabrication (50 Hours)

Trainee \$20 ISBN 978-0-13-604787-2  
 Instructor \$20 ISBN 978-0-13-604763-6  
 (Module ID 08402-07) Discusses how to lay out and fabricate mitered bends, laterals, wyes, and ninety-degree intersections using tables of ordinates or a calculator. This knowledge is required in order to fabricate specialty bends and intersections.

### Stress Relieving and Aligning (10 Hours)

Trainee \$20 ISBN 978-0-13-604788-9  
 Instructor \$20 ISBN 978-0-13-604764-3  
 (Module ID 08403-07) Explains the nature of misalignment and methods of correcting it. Includes terminology that will help pipefitters communicate with millwrights who perform pump setup.

### Steam Traps (10 Hours)

Trainee \$20 ISBN 978-0-13-604789-6  
 Instructor \$20 ISBN 978-0-13-604765-0  
 (Module ID 08404-07) Describes types of steam traps, how they function, and the basic methods for troubleshooting them.

### In-Line Specialties (10 Hours)

Trainee \$20 ISBN 978-0-13-604790-2  
 Instructor \$20 ISBN 978-0-13-604766-7  
 (Module ID 08405-07) Describes specialty devices used in pipelines, including: bleed rings; ball and expansion joints; measuring devices for temperature, level, flow rate, and pressure; steam traps; drip legs; and desuperheaters. The purpose and function of each type is explained.

### Special Piping (25 Hours)

Trainee \$20 ISBN 978-0-13-604791-9  
 Instructor \$20 ISBN 978-0-13-604767-4  
 (Module ID 08406-07) Discusses methods of assembling copper and plastic pipe and tubing. Introduces brazing and soldering, and explains the differences between these two procedures. Also describes compression and flared fittings, and grooved and compression formed joining methods.

### Hot Taps (10 Hours)

Trainee \$20 ISBN 978-0-13-604792-6  
 Instructor \$20 ISBN 978-0-13-604768-1  
 (Module ID 08407-07) Explains the mechanics of attaching fittings to the pipeline while the line is under pressure. Covers line stopping, freeze stopping, and adding connections to the line.

### Maintaining Valves (10 Hours)

Trainee \$20 ISBN 978-0-13-604794-0  
 Instructor \$20 ISBN 978-0-13-604804-6  
 (Module ID 08408-07) Explains how to replace packing and O-rings, and how to open and close a valve's bonnet. Discusses how to safely troubleshoot and maintain several types of valves.

### Introduction to Supervisory Roles (7.5 Hours)

Trainee \$20 ISBN 978-0-13-604761-2  
 Instructor \$20 ISBN 978-0-13-604805-3  
 (Module ID 08409-07) Offers basic information for pipefitters who have a desire to move into supervisory roles. Provides information on issues related to cultural differences, gender-based social behaviors, and legal and ethical situations that a supervisor is likely to encounter.