



Course Name	Piping Systems Part 2
Credit Hours	3.5 Hours
Course Description	This course dives further into piping systems by discussing the individual components that make piping systems function, including fittings, common and special valves, strainers, filters, traps, and accessories.
Course Objectives	<p>After completing this course, the licensee should be able to:</p> <ul style="list-style-type: none">• Explain how expansion joints and vibration dampeners work.• Contrast screwed, flanged, and welded connections, and tell why one type of joint may be preferred for a given application.• Discuss the main functions of fittings.• Identify common pipe and tube fittings.• Demonstrate a knowledge of the symbols used to represent joints and fittings on schematic drawings of piping systems.• Explain the various ways in which valves control fluid flow in piping systems.• Identify gate, globe, needle, ball, butterfly, plug, and check valves, and tell what each is used for.• Explain how and why quick-opening valves are used in industrial piping applications.• Describe routine inspection, lubrication, and maintenance procedures for common valves.• Explain how diaphragm valves work.• Describe the functions of the three main types of blowdown valves.• Tell how regulating valves, relief valves, and reducing valves are used in industrial piping systems.• Describe how different kinds of actuators open and close valves in response to pneumatic, hydraulic, or electrical signals.• Discuss the protective uses of strainers and filters in piping systems.• Explain how the relationship between pressure and temperature affects steam lines and creates the need for steam traps.• Describe proper steam trap maintenance.

- Explain how and why air-vent and water-drain valves are used.
- Describe how a heat exchanger works in a fluid system.
- Describe how different types of gauges are used to measure pressure and temperature in piping systems.
- Explain why rotary pressure joints are necessary in some applications.
- Describe the functions of accumulators and receivers.
- Tell how actuators and intensifiers are used in fluid-power systems.
- Discuss the principles of preventive maintenance and repair maintenance as they apply to piping systems.

Course Timed Syllabus

Attached

Method of Presentation

This online course uses instructor-led video, animation, text, and images. Multiple choice questions are used to test how well the student understands the material between each section. Each answer choice has a response which tells the student whether the selected answer is correct or not.

Schedule and Location

This course may be taken at any time at www.aypotech.com. The student may sign in and out of the course as many times as needed to complete the course.

Attendance Verification

Licenses can only access the training course using a secure username and password, linked to their unique email address.

Method of Evaluation

The licensee must complete all multiple-choice questions between sections correctly to get credit for the course. If their first response is incorrect, students will have to try again until they choose the correct answer. Question choices are randomized, so each participant will have a unique testing experience.

The course is also timed; participants will not get credit until they spend at least 210 active minutes in the course.

After successful completion of the course, the licensee is required to complete and submit a questionnaire in order to access their certificate of completion.

**Instructor
Cost**

Jerry Durham
\$35.00

Piping Systems Part 2 Timed Syllabus

Section	Topic	Questions	Word Count	Minutes
	Fittings			
1	Fittings	1	302	3.5
2	Functions of Fittings	3	1283	13.7
3	Screwed and Flanged Connections	2	1069	10.9
4	Other Fittings	1	362	4.0
5	Welded Connections	1	91	1.8
6	Tube Fittings	1	508	5.2
7	Drawing Symbols	2	217	3.8
	Common Valves			
8	Valves	1	724	7.0
9	Types of Industrial Valves	3	575	7.8
10	Gate Valves	1	234	3.0
11	Globe Valves	1	266	3.2
12	Needle Valves	1	127	2.1
13	Ball Valves	1	207	2.7
14	Butterfly Valves	1	389	4.2
15	Plug Valves	1	235	3.0
16	Check Valves	1	394	4.3
17	Quick-Opening Valves	1	217	2.8
18	Valve Maintenance and Connections	1	680	6.7
	Special Valves			
19	Specialized Valves and Diaphragm Valves	1	764	7.4
20	Blowdown Valves	1	734	7.1
21	Pressure-Regulating Valves	2	579	6.8
22	Temperature-Regulating Valves	1	138	2.2
23	Safety Valves	1	319	3.7
24	Relief Valves	1	205	2.7
25	Rupture-Disk Relief Valves	1	140	2.2
26	Reducing Valves	1	196	2.6
27	Other Valves	2	228	3.9
28	Valve Operators	1	218	2.8
29	Magnetic, Pneumatic, and Hydraulic Operators	1	302	3.5
30	Remote Control	1	227	2.9
	Strainers, Filters, and Traps			
31	General Applications	1	186	2.6
32	Strainers	2	696	7.8
33	Filters	2	604	7.0
34	Steam	2	561	6.7
35	Traps	1	803	7.7
36	Vent Valves	1	441	4.7
37	Trap Maintenance	1	244	3.0
38	Typical Piping System	1	449	4.7
	Accessories			
39	Pressure Gauges	3	754	9.3
40	Temperature Gauges	1	387	4.2
41	Rotary Pressure Joints	1	455	4.8
42	Vacuum Breakers	1	159	2.3
43	Accumulators	1	163	2.4
44	Receivers	1	116	2.0
45	Actuators and Intensifiers	2	407	5.4
46	Pneumatic Pressure Line Accessories	1	523	5.4
47	Heat Exchangers	1	247	3.1
48	Wrenches	1	260	3.2
49	Maintenance	1	233	2.9
Totals:		63	19618	226.5
Time Required to Complete Course:				210

Jerry L Durham

Certificates/Licenses

North Carolina Electrical Inspector Level III

North Carolina Plumbing Inspector Level I

North Carolina Mechanical Inspector Level I

Washington Electrical Administrator #DURHAJL821PQ

ICC Kentucky E1 Electrical Inspector, Masters Electrician, Journeyman Electrician

NCCER Core and Electrical Curriculum Instructor Certification

Work Experience

Instructor (JADE Learning/At Your Pace Online)

2018 - Present

Write and develop course curriculum, technical articles, and related learning materials. Teach in-person classroom courses.

Electrical Inspector- LVL 3 (Alamance County Government)

2015 - 2018

Code enforcement officer, enforcing all guidelines set forth in the National Electrical Code and applicable State-issued code amendments, as they apply to residential and commercial electrical installations throughout the state of North Carolina.

Electrical Instructor (Alamance Community College)

2017- Present

Taught from six to thirty NC electrical inspectors per 40-hour training session. Taught basic electrical theory, Ohm's Law, circuitry, voltage drop calculations, box/pipefill calculations, junction and pull-box calculations, conductor derating and adjustment calculations, residential-service-calculations, and National Electrical Code.

Code Enforcement Officer (Louisville Metro Government)

2009 - 2015

City inspector, charged with determining property maintenance and health and safety code compliance and/or infractions for dwellings (interior/exterior), commercial structures, properties, parcels and lots. Included enforcement of local, state and federal code requirements pertaining to building, zoning, electrical, plumbing, HVAC and Land Development in the Louisville Metro area. The department's electrical instructor, performing classroom setting electrical instruction.

Electrical Instructor (ABC Trade School)

2010 - 2014

Instructor of 25 electrical trade students participating in their first through fourth year of a four-year electrical apprenticeship program. Also performed state approved Masters and Journeyman State Licensing preparatory courses.

Electrical Instructor (IEC Trade School)

2009 - 2010

Instructor of 25 electrical trade students in a four-year apprenticeship program.

Licensed Electrician (Curtsinger Electric Company)

2003 - 2009

Managed multiple electrical remodel and new-build projects, performing interior/exterior lighting design, installation and system troubleshooting. Diagnosis and repair of residential and commercial electrical, phone and cable installations. Continual training of apprentices in the areas of customer care, electrical theory/diagnosis, repair/installation and effective time management.