

ATPL-1809: SPECIAL TOPICS: PLUMBING GAS SYSTEMS

Cuyahoga Community College

Viewing: ATPL-1809 : Special Topics: Plumbing Gas Systems

Academic Term:

Fall 2026

Subject Code

ATPL - Applied Ind Tech - Plumbers

Course Number:

1809

Title:

Special Topics: Plumbing Gas Systems

Catalog Description:

This course is the study of the procedures followed in the installation of natural gas systems, pipe sizing, safety and the repair of natural gas systems.

Credit Hour(s):

2

Lecture Hour(s):

2

Outcomes

Course Outcome(s):

Describe and follow safety procedures when working with explosive natural gas, use the proper personal protective equipment (PPE), and use the required hand and power tools safely.

Objective(s):

1. Identify the safety hazards of working with natural gas.
2. Select the appropriate working apparel needed to perform the installations in a safe manner.
3. Operate the various hand and power tools in a safe manner.

Course Outcome(s):

Identify the various natural gases that are used in the plumbing industry

Objective(s):

1. Differentiate between natural and propane gas.
2. Discuss the effects of natural gas on the human body.
3. Discuss gases used in commercial applications.
4. Differentiate between the uses of natural gas and propane in residential construction.

Course Outcome(s):

Describe the procedures and properly install the respective piping systems that are used to supply the various gases.

Objective(s):

1. Identify the different kinds of pipe used to transmit natural gas.
 2. List of the power tools and equipment used in the installation of piping systems.
 3. Describe how to correctly size piping systems.
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Methods of Evaluation:

- 1. Assignments
- 2. Participation
- 3. Attendance
- 4. Exams/quizzes

Course Content Outline:

- 1. Safety
 - 1. Explosives
 - 2. Personal protective equipment
 - 3. Hand and power tools
- 1. Natural gases
 - 1. Science of gas
 - 2. Identification
 - 3. Effects
 - 1. Human health
 - 2. Environment
- 1. Piping systems
 - 1. Types of pipe
 - 1. Black steel
 - 2. Polypropylene
 - 3. Stainless steel
 - B. Tools and equipment
 - C. Sizing
 - 1. Pipe
 - 2. Per code
- IV. Use of gas
 - A. Applications
 - 1. Burning
 - 2. Heating
 - 3. Appliances
 - B. Commercial
 - C. Residential

Religious Accommodation

Before reviewing the course schedule, students should carefully review the following religious accommodation policy and other required instructional policies:

Religious Accommodation:

Students seeking an accommodation for absences permitted under Ohio's Testing Your Faith Act must provide the instructor with written notice of the specific dates for which the student requires an accommodation and must do so not later than fourteen (14) days after the first day of instruction. Please submit requests for accommodations at this link: [https://portal2.tri-c.edu/ReligiousAccommodation/Religious Accommodation Form](https://portal2.tri-c.edu/ReligiousAccommodation/ReligiousAccommodationForm). Students with questions about their religious accommodations under Ohio's Testing Your Faith Act may contact the College's Office of General Counsel and Legal Services by phone at 216.987.4856 or via email at legal@tri-c.edu.

Other Required Instructional Policies:

<https://www.tri-c.edu/student-resources/curriculum/documents/syllabus-part-b.pdf>

Weekly Schedule

	Topics
Week 1	Introduction to Gas Systems & Course Overview
Week 2	Safety Procedures and Hazard Awareness
Week 3	Personal Protective Equipment (PPE)
Week 4	Science of Gas

Week 5	Types of Natural Gases
Week 6	Natural Gas vs. Propane
Week 7	Effects of Gas on Human Health
Week 8	Environmental Effects of Gas
Week 9	Piping Systems Overview
Week 10	Types of Gas Piping Materials
Week 11	Tools and Equipment for Gas Installation
Week 12	Pipe Sizing Principles
Week 13	Code-Based Gas Pipe Sizing
Week 14	Valves and Regulators
Week 15	Commercial Gas Applications
Week 16	Residential Gas Applications & Review

The Course Schedule is subject to change due to pedagogical needs, instructor discretion, parts of term, and unexpected events.

Required/Recommended Readings

Instructor-provided materials

Resources for the Instructor

International Code Council, Inc. *Ohio Gas Code*. Chicago, IL: International Code Council, Inc, <https://www.iccsafe.org/>

International Pipe Trades Joint Training Committee, Inc. *Gas Installations*. Annapolis, MD: United Association, www.ua.org/training

Additional Resources for the Instructor

1. Gas Installations – from the International Union of Plumbers (www.ua.org/training (<https://catalog.tri-c.edu/www.ua.org/training/>))
2. Power points and handouts - Plumbers Local 55 JATC
3. www.iccsafe.org (<https://catalog.tri-c.edu/www.iccsafe.org>)
4. www.ua.org (<https://catalog.tri-c.edu/www.ua.org>)
5. <https://codes.ohio.gov/ohio-administrative-code/4101:3> (<https://codes.ohio.gov/ohio-administrative-code/4101:3/>)

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