



**Course Name** Graywater & POWTS

**Credit Hours** 4 Hours

**Instructor(s)** Randy Drake

**Fee** \$40.00

### **Course Description**

This class provides two hours of content on topics central to the plumbing trades. It covers two related topics, both of which are experiencing rapid changes – POWTS (Private Onsite Water Treatment Systems) and systems that reuse graywater.

### **Learning Objectives**

At the completion of the course, students will be able to:

- Apply the most up-to-date approaches to graywater systems.
- Know what to look for and how to handle private onsite water treatment systems
- Be more knowledgeable on the resources available and current best practices for both graywater systems and POWTS.

### **Equipment Requirements**

You must have an active, working internet connection to access this course online, as well as a platform to access the internet, such as a computer, tablet, or phone. All popular web browsers are supported, including Google Chrome, Mozilla Firefox, Safari, and Opera. No specialized software, speaker, microphone, or web camera is required.

### **Schedule and Location**

This course is available online at any time at [www.TradesmanCE.com](http://www.TradesmanCE.com). Upon enrolling in the course, Learners will have six (6) months from the date of enrollment to complete their course. However, this time frame may be shortened or lengthened if course expiration dates or regulatory requirements dictate otherwise.

### **Student Support**

Both general and technical support is available to the student before, during, and after taking the course online. Students have access to general customer support via phone, chat, and email.

Students have access to the course instructor via email. All questions, concerns, and comments received will be responded to within one business day.

## **Participation/Interactivity Verification**

Timed Logs - Per our company's record retention policy, each student's every log-in, log-out, and lesson/assessment completion time is tracked and retained as part of the student record.

Review Questions - After each section of text, students must answer a review question. Students cannot progress in the course until the question between sections has been answered correctly.

Global Timer - Students will not get credit until they spend a minimum of 200 active minutes total in the course.

## **Participation Guidelines**

All learners are expected to:

- Complete 100% of the required components of the course.
- Adhere to any specified deadlines within the course timeline.
- Engage with course materials in a consistent and timely manner to remain in good standing.

Failure to complete required components within the designated timeframe may result in loss of access to the course or forfeiture of any certifications or credit hours.

## **Accountability Measures**

To ensure academic integrity and compliance with regulatory standards:

- Each learner must access the LMS using a unique username and password.
- Additional security measures, such as security questions or biometrics, may be implemented based on regulatory requirements.
- An inactivity timer is in place within the LMS. Learners who are not actively engaging with course content will be automatically logged out after a period of inactivity.

## Graywater & POWTS Timed Outline

| Section | Title                                                                            | Questions | Minutes |
|---------|----------------------------------------------------------------------------------|-----------|---------|
| 1       | Introduction to Class on Graywater & Private Onsite Wastewater Treatment Systems | 1         | 3.7     |
| 2       | Principles of Graywater                                                          |           | 1.2     |
|         | a. Introduction                                                                  |           | 3.6     |
|         | 1. Solutions                                                                     |           | 4.2     |
|         | 2. Reasons to Use Graywater                                                      |           | 3.0     |
|         | b. What is Graywater?                                                            |           | 3.4     |
|         | c. Basic Rules                                                                   |           | 5.3     |
|         | d. Economics                                                                     |           | 3.2     |
|         | e. Health Concerns                                                               |           | 6.3     |
|         | f. Graywater to Potable Water Treatment                                          |           | 5.6     |
|         | g. Laws and Rules                                                                | 1         | 4.5     |
| 3       | Design & Installation of Graywater Systems                                       |           | 3.4     |
|         | a. Graywater Supply                                                              |           | 2.9     |
|         | 1. Sample Procedure for Estimating Graywater Discharge                           |           | 1.7     |
|         | 2. Commercial Graywater Supply                                                   |           | 1.2     |
|         | b. Matching Demand and Supply                                                    |           | 3.3     |
|         | c. Irrigation Systems                                                            |           | 0.8     |
|         | 1. Water Source                                                                  |           | 2.5     |
|         | 2. Soil Type                                                                     |           | 6.2     |
|         | 3. Vegetation to be Watered                                                      |           | 2.0     |
|         | 4. Location & Clearances Required                                                |           | 1.6     |
|         | 5. Laundry to Landscape                                                          | 1         | 8.3     |
| 4       | Best Practices and Codes for Graywater Systems                                   |           | 0.1     |
|         | a. Best Sources                                                                  |           | 2.1     |
|         | b. Recommended Installation Elements                                             |           | 6.0     |
|         | c. Recommended Maintenance Protocols                                             |           | 2.5     |
|         | d. Codes                                                                         | 1         | 23.7    |
| 5       | Private Onsite Wastewater Treatment Systems (Video)                              | 1         | 4.2     |
| 6       | Private Onsite Wastewater Treatment Systems (POWTS)                              |           | 0.1     |
|         | a. History & Development of Private On-Site Water Treatment Systems POWTS        |           | 11.5    |
|         | b. Principles                                                                    |           | 3.8     |
|         | c. Basic Design                                                                  |           | 6.7     |
|         | 1. Flow Velocity                                                                 |           | 2.0     |
|         | 2. Gravity or Pump-Based Collection and Distribution                             |           | 4.2     |
|         | 3. Sizing - Estimating Wastewater Flow                                           |           | 6.5     |
|         | a. Estimating for Commercial Facilities                                          |           | 1.4     |
|         | b. Estimating Contaminant Loads                                                  |           | 0.7     |
|         | d. Disposal Field                                                                |           | 2.3     |
|         | e. Role of the Septic Tank                                                       |           | 4.7     |
|         | 1. Sludge and Scum                                                               |           | 2.8     |
|         | 2. A Note on Garbage Disposals                                                   | 1         | 4.1     |
| 7       | POWTS Design and Installation                                                    |           | 0.4     |
|         | a. Septic Tanks                                                                  |           | 0.0     |
|         | 1. Location Compartments and Capacity                                            |           | 4.0     |
|         | 2. Tank Material and Backfill                                                    |           | 1.5     |
|         | 3. Access and Tank Inlet and Outlet                                              |           | 3.7     |
|         | 4. Cleaning Septic Tanks                                                         |           | 1.7     |

|   |                                            |          |              |
|---|--------------------------------------------|----------|--------------|
|   | 5. Chemical Additives                      |          | 2.0          |
|   | 6. Laws and Regulations                    |          | 5.9          |
|   | b. Soil Absorption Systems                 |          | 4.7          |
|   | 1. Percolation Tests                       |          | 2.6          |
|   | 2. Site Preparation and Construction       |          | 1.9          |
|   | 3. Seepage Pits                            |          | 1.7          |
|   | c. Alternative POWTS                       |          | 1.6          |
|   | d. Utah Regulations                        |          | 2.1          |
|   | 1. R317-4-7. Construction and Installation |          | 6.5          |
|   | 2. Construction and Installation Part 2    |          | 5.5          |
|   | 3. R317-4-8. Final Inspections             | 1        | 5.2          |
| 8 | End of the Class                           | 1        | 0.9          |
|   | <b>Totals:</b>                             | <b>8</b> | <b>219.2</b> |
|   | <b>Student Minimum Time Required:</b>      |          | <b>200</b>   |

