



### Course Outline

Course Title	CWQA Water Treatment Installation
Course Number	WXM2
Course Hours	Variable

### Staff Approval List

Peter Cartwright, Jason Jackson, Claude Gauthier, Ric Harry	Faculty
Aysha Muzaffar	Coordinator/ Administrator
Kevin Wong	Executive Director

### Prerequisites

Course Title	WXM0 CWQA Water Basics
Course Title	WXM1 CWQA Water Fundamentals
Course Title	WXM1-1 CWQA Water Fundamentals In- Class Session
Exam	WXM0 and WXM1 (Water basics exam and the CWT exam)

### Course Description

The following document is a draft outline of a suggested standard for basic introductory level of training intended for personnel installing water treatment systems.

The students will learn the basic principles of the water system, and water quality including Installation Standards, Plumbing Terminology, Plumbing Codes, Waste Connections to Plumbing System, Preventing Cross-Connections in Treatment System Installation, Valves, Fittings, Common Plumbing Symbols, Pipe Material, Hangers and Supports.

In the second module of the course, students will learn Installation Procedures for a POE Single Pressurized Tank, Installation Sequence for Multiple Tanks or Systems, Installation Procedures for a POE Consumable Cartridge Filter, Installation Procedures for Chemical Injection Devices, POE Installation Challenges.

In the third module, the student will learn how to install point of entry systems.

In the fourth module, the student will learn how to Sanitation for Systems with Disposable Carbon Filters Media, General Sanitation Practices for Manufacturers and Water Treatment Dealers, Good Manufacturing Sanitation Practices, Sanitation Suggestions for the Water Treatment Dealer, Sanitation Process for Water Softeners, Sanitation Process for RO Systems, Sanitation Process for UV Systems Disinfectant Sanitizers, Sanitizing Water-Using Appliances in Water Emergencies and Well Disinfection Procedures, General Workplace Safety, Chemical Handling Safety, Electrical Safety, Microbial Control and Sanitation of Commercial/Industrial and Ultrapure Water Treatment Systems

Note: The majority of the curriculum will be online via the Modular Education Program  
The Practical (in class) component will include common plumbing problems, identification of equipment, practices in installation and backflow/cross connections, where the student will identify installation challenges to the code and good engineering practices. This course will be offered after the completion of

the fundamentals modules to augment the in class portion of that section.

That in-class sessions will take the identification of problem water samples, field analysis and diagnosis of the sample's chemistry, the solution development to treat the water and the design of the system.

### Course Learning Outlines

1	Installation Standards, Plumbing Terminology, Plumbing Codes, Waste Connections to Plumbing System, Preventing Cross-Connections in Treatment System Installation, Valves, Fittings, Common Plumbing Symbols, Pipe Material, Hangers and Supports.
2	Installation Procedures for a POE Single Pressurized Tank, Installation Sequence for Multiple Tanks or Systems, Installation Procedures for a POE Consumable Cartridge Filter, Installation Procedures for Chemical Injection Devices, POE Installation Challenges.
3	Installation Procedures for point of entry systems
4	Sanitation for Systems with Disposable Carbon Filters Media, General Sanitation Practices for Manufacturers and Water Treatment Dealers, Good Manufacturing Sanitation Practices, Sanitation Suggestions for the Water Treatment Dealer, Sanitation Process for Water Softeners, Sanitation Process for RO Systems, Sanitation Process for UV Systems Disinfectant Sanitizers, Sanitizing Water-Using Appliances in Water Emergencies and Well Disinfection Procedures, General Workplace Safety, Chemical Handling Safety, Electrical Safety, Microbial Control and Sanitation of Commercial/Industrial and Ultrapure Water Treatment Systems

### Additional Learning Outcome Comments

Upon successful completion of the course the learner will be able to:  
 Demonstrate the ability to install point of use and point of entry systems  
 Identify and mitigate cross connections and backflow issues  
 Demonstrate the ability to start up a system  
 Demonstrate the ability to sanitize the system on start up  
 Explain the operating application of water treatment equipment with respect to problem water chemistry.  
 Understand and apply the CWQA Code of Ethics, and Marketing and promotions guidelines.

### Learning Resources

All additional resources within course lectures, modules and/or assignments must adhere to the Canadian Copyright Act.

The student may be required to have an approved test kit, tools and safety equipment for the handling of water treatment equipment, chemicals and contaminated water. Care and safety protocols should be adhered to with handling samples and chemicals.

For the Instructor: Please refer to the Water Treatment Basics, the Field Testing and Analysis Education Standards and Fundamentals for content, and breakdown.

### Assessment Requirements

Note: does not need to be all

Assessment Task	% or P/F
Applied Learning	8-20 hours online learning with knowledge base reading and MEP activities
Assignments	In the MEP
In-Class activities	4 hours
Labs	In the MEP
Presentations	Na
Quizzes	In the MEP
Tests	1 hour

**Prior Learning and Assessment and Recognition (PLAR)**

PLAR uses tools to help learners reflect on, identify, articulate, and demonstrate past learning which has been acquired through previous training, study, work and other life experiences and which is not recognized through formal transfer of credit mechanisms.

PLAR options include authentic assessment activities designed by faculty that may include challenge exams, portfolio presentations, interviews, and written assignments. Learners may also be encouraged and supported to design an individual documentation package that would meet the learning requirements of the course. Any student who wishes to have any prior learning acquired through life and work experience assessed, so as to translate it into course credit, may initiate the process by applying through the CWQA.

A copy of CWQA's PLAR policy is attached.

**Student Success: Policies and Procedures**

Mutually, faculty and learners will support and adhere to CWQA Academic Regulations, and Student Rights and Responsibilities. The following policies and guidelines have been developed to support the learning process.

Please click on the link for information about:

- Student Rights and Responsibilities
- Academic Regulations
- Guidelines for Professional Practice: Students and Instructors

Alternate accessible formats of learning resources and materials will be provided, on request. (AODA statement)

**Program Standards:**

The Authority Having Jurisdiction such as the Ontario Ministry of Training, Colleges and Universities oversees the development and the review of standards for regulated programs of instruction. CWQA adheres to these guidelines until such time as this program is mandated and recognized by O.MTCU. Each training delivery organization is required to ensure that its programs and program delivery are consistent with these standards, and must assist students to achieve these essential outcomes.

This course contributes to Program Standards as defined by the Alberta Safety Council and the Ontario Ministry of Training, Colleges and Universities (MTCU). Program standards apply to all similar programs of instruction offered by colleges across the province. Each program standard for a postsecondary program includes the following elements:

- Vocational standards (the vocationally specific learning outcomes which apply to the program of instruction in question);
- Essential employability skills (the essential employability skills learning outcomes which apply to all programs of instruction); and
- General education requirement (the requirement for general education in postsecondary programs of instruction that contribute to the development of citizens who are conscious of the diversity, complexity and richness of the human experience; and, the society in which they live and work).

Collectively, these elements outline the essential skills and knowledge that a student must reliably demonstrate in order to complete the CWQA MEP program. For further information on the standards for your program, follow the MTCU link ([www.tcu.gov.on.ca/pepg/audiences/colleges/progstan/](http://www.tcu.gov.on.ca/pepg/audiences/colleges/progstan/))

**Essential Employability Skills**

#	Description	Use (Y/N)
1	Communicate clearly	Y
2	Respond to communication	Y
3	Use mathematical operations	Y
4	Solve problems systematically	Y
5	Anticipate and solve problems	Y
6	Document information	Y
7	Analyze information	Y
8	Respect diverse opinions	N
9	Interact with groups or teams	Y
10	Manage time and resources	Y
11	Take responsibility for self	Y