



### Course Outline

Course Title	CWQA Certified Water Technician's Live Course
Course Number	WXM1-1
Course Hours	5-8

### Staff Approval List

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

### Prerequisites

Course Title	WXM0 CWQA Water Basics (MEP) WXM1- CWQA Water Treatment Fundamentals (MEP)
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### Course Description

The following document is a draft outline of a suggested standard for proficiency check intended for personnel selling, stocking, designing, installing or maintaining water treatment systems.

The students will learn the basic principles of:

Identifying Water Treatment Challenges:

Identifying problem water

Identifying Water Treatment Technologies and their Capabilities:

Ion Exchange systems ,Softener Capacity, Calculate Softener Capacity, RO System and Performance, RO System Capacity, Calculate % Rejection for RO, Filtration Mechanics and Systems, Choosing a Filter Treatment, and Sizing

Water Analysis:

Selecting Tests for Analysis, Implications of Water Tests, and Conduct water tests on a challenge water sample.

Interpret Water Tests:

Analyzing the water results and diagnosing the challenges in the water

Water Treatment System Operations

Developing the options for water treatment to manage the chemistry and physical concerns analysed.

Specification Fundamentals:

Existing plumbing considerations, Hydraulic Principles for Distribution Systems, Sizing a POE System.

Disinfection Methods Fundamentals:

Pretreatment, Disinfecting Water, UV Disinfection Systems, Chemical Disinfection Systems, Regulations for Disinfection, and Final Barrier Water Treatment

Legal Considerations Fundamentals:

Plumbing Code, and Product Certification

### Ridealongs

It is recommended that the student perform a number of ridealongs or monitored observations for softening, disinfection, filtration, Fe/Mn treatment, chemical treatment, disinfection and reverse osmosis systems. Field work and observations are critical in understanding how the equipment and applications perform in the field in real world field conditions.

### Course Learning Outlines

1	Identifying Water Treatment Challenges
2	Identifying Water Treatment Technologies and their Capabilities
3	Water Testing and Analysis
4	Interpret Water Tests
5	Water Treatment System Operations
6	Specification Fundamentals
7	Disinfection Methods Fundamentals
8	Legal Considerations Fundamentals

### Additional Learning Outcome Comments

Upon successful completion of the course the learner will be able to demonstrate that:  
Demonstrate the ability to recognize the water problems and water chemistry concerns  
Demonstrate the ability to diagnose, analyze and evaluate problem water sources and recommend relevant solutions  
Identify common water treatment equipment and their applications and utilization as part of a treatment train  
Explain the application of water treatment equipment with respect to problem water chemistry.  
Design a water treatment system based on the inlet water quality and the desired water quality needs.

### 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, and safety equipment for the handling of 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 Fundamentals Standards for content, and breakdown.

### Assessment Requirements

Note: does not need to be all

Assessment Task	% or P/F
Applied Learning	8 hours Practical and in class
Assignments	Water testing, system determination, system train design
In-Class activities	5-8 hours after the MEP content is completed for Basics and Fundamentals
Labs	In the MEP
Presentations	N/A
Quizzes	In the MEP
Tests	Must complete the water basics exam, the field water testing and analysis exam and the certified water technicians exam. (5 hours)

### **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).
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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	Y
9	Interact with groups or teams	Y
10	Manage time and resources	Y
11	Take responsibility for self	Y