



Course Outline

Course Title	CWQA Core Design
Course Number	WXM9
Course Hours	8-20 hours

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
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 core design level of training intended for personnel designing water treatment systems.

The students will learn the basic principles and practical life activities (supervised- on the job activities) of the water treatment system including

Water Diagnosis and Solution Recommendations - Aesthetic Problems: Understanding the customer's concerns, field practice and available solutions for in home concerns

Common Water Problems:

- Designing a Water Treatment System
- Treating Nitrates in the Water
- Treating Bacterial Contamination in the Water
- Treating Iron, Manganese, and Hydrogen Sulfide in the Water
- Treating Arsenic in the Water

Identifying and Treating Regional Water Problems

- Endocrine Disruptors and Pharmaceuticals
- Chromate, Uranium, Perchlorate, and Sulfate
- Corrosion Control: pH and Alkalinity Modification
- Radium, Barium and Radioactive Decay
- Phosphates and Chloramines
- Tannins
- Anion Exchange

Practice Treating for Pharmaceuticals, Personal Care Products and Endocrine Disrupting Compounds in the Water

Practice Treating Chromate, Uranium, Perchlorate, and Sulfate in the Water
Practice Corrosion Control
Practice Treating Radium, Barium and Radioactive Decay in the Water
Practice Treating Tannins in the Water
Practice Treating Phosphates and Chloramines in the Water
Pipe Sizing- Calculating Pressure Loss in Distribution Systems

Course Learning Outlines

1	Water Diagnosis and Solution Recommendations - Aesthetic Problems
2	Common Water Problems
3	Identifying and Treating Regional Water Problems
4	Practice Treating for Pharmaceuticals, Personal Care Products and Endocrine Disrupting Compounds in the Water
5	Practice Treating Chromate, Uranium, Perchlorate, and Sulfate in the Water
6	Practice Corrosion Control
7	Practice Treating Radium, Barium and Radioactive Decay in the Water
8	Practice Treating Tannins in the Water
9	Practice Treating Phosphates and Chloramines in the Water
10	Pipe Sizing

Additional Learning Outcome Comments

Upon successful completion of the course the learner will be able to:
 Demonstrate the ability to design a water treatment system to solve multiple consumer concerns
 Demonstrate the ability to diagnose, analyze and evaluate problem water sources and design a solution in the proper train/ sequence.

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.

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	N/A
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).
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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/)

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