

Clackamas Community College

Online Course/Outline Submission System

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Section #1 General Course Information**Department:**Engineering Science**Submitter**

First Name: Matt

Last Name: LaForce

Phone: 3148

Email: laforce

Course Prefix and Number:MTH - 082B

Credits:1**Contact hours**

Lecture (# of hours): 11

Lec/lab (# of hours):

Lab (# of hours):

Total course hours: 11

For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

Course Title:Waterworks Math I**Course Description:**

Problem solving for waterworks applications. Introduction to basic algebra and mathematics concepts, conversions, and calculations encountered in the waterworks industry.

Type of Course:Developmental Education

Can this course be repeated for credit in a degree?

No

Are there prerequisites to this course?

Yes**Pre-reqs:**Pass MTH-065 or instructor consent.

Have you consulted with the appropriate chair if the pre-req is in another program?

No

Are there corequisites to this course?

Yes

Co-reqs:WET-110

Are there any requirements or recommendations for students taken this course?

No

Will this class use library resources?

No

Is there any other potential impact on another department?

No

Does this course belong on the Related Instruction list?

No

GRADING METHOD:

A-F or Pass/No Pass

Audit:Yes

When do you plan to offer this course?

✓ Fall

Will this course appear in the college catalog?

Yes

Will this course appear in the schedule?

Yes

Student Learning Outcomes:

Upon successful completion of this course, students should be able to:

1. review and demonstrate proficiency in math problems that include:
 - a. manipulation of fractions and decimals,
 - b. percent and unit conversion;
2. become proficient at basic hydraulic calculations used in the waterworks industry, including the following types of problems:
 - a. hydraulic detention time,

- b. hydrostatic pressure,
 - c. volumes and areas of common geometric shapes,
 - d. applications of the fundamental flow equation $Q = A \times V$.
3. solve waterworks math problems equivalent to those on State of Oregon Level I and Washington OIT Certification Exams.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. Review of "basic" math used in water industry problem solving. Formulas for determining areas and volumes of common geometric shapes.
2. Continued review of basic math. Methods for making unit conversions in waterworks problem solving.
3. Practice calculating area and volume.
4. Introduction to the Fundamental Flow Equation.
5. Applications of the Fundamental Flow Equation.
6. Waterworks applied hydraulics, hydrostatic pressure.
7. Waterworks applied hydraulics, hydraulic detention time.
8. Waterworks applied hydraulics: flow rate, pipe size and velocity.
9. Calculating chlorine disinfectant C X T values.

Does the content of this class relate to job skills in any of the following areas:

- | | |
|--------------------------------------|------------|
| 1. Increased energy efficiency | No |
| 2. Produce renewable energy | No |
| 3. Prevent environmental degradation | Yes |
| 4. Clean up natural environment | Yes |
| 5. Supports green services | No |

Percent of course:100%

First term to be offered:

Next available term after approval

:
