



## Collection System Exam Preparation Grade 2 Course Syllabus

### Purpose

This course is designed to prepare you for your Second Level Collection System Operator exam.

### Topics

Collection System Design and Layout  
Collection Equipment Maintenance  
Collection System Maintenance and Repair  
Lift Stations  
Collection System Testing and Inspections  
Collection System Rehabilitation  
Collection System Safety  
Unit Conversions  
Area Calculations  
Volume Calculations  
Using Formulas  
Velocity and Flow Rate  
Other collection system math topics

### CEUs (Contact Hours)

Upon completion of this course, you will receive a certificate for 1.6 CEUs (16 Contact Hours).

### Completion Requirements

In order to receive [IACET CEU](#) credit for this course, you must complete the following:

- Complete each individual lesson module by watching the video lecture, completing the lesson handout, and passing the lesson quiz.

Once you have completed all of these elements, your course completion certificate will be automatically placed into your learning account for printing/downloading. It will remain in your learning account even after your course access has expired.

### Learning Objectives

#### Collection System Design and Layout

Upon completion of this lesson the student will be able to:

- Demonstrate understanding of collection system vocabulary
- Demonstrate understanding of collection system design criteria
- Demonstrate understanding of the function of collection system components
- Demonstrate how to estimate flow velocity within a sewer

#### Collection Equipment Maintenance

Upon completion of this lesson the student will be able to:

- Demonstrate understanding of vocabulary associated with collection system equipment maintenance

- Demonstrate understanding of the components and tools used to perform electrical maintenance
- Demonstrate understanding of causes of motor failure
- Demonstrate understanding of centrifugal pump components and operation
- Demonstrate understanding of the purpose of lubrication

#### Collection System Maintenance and Repair

Upon completion of this lesson the student will be able to:

- Demonstrate understanding of System Maintenance and Repair vocabulary
- Demonstrate understanding of System Maintenance and Repair techniques
- Demonstrate Proper operation of clearing and cleaning equipment
- Demonstrate Proper sewer line repair procedures

#### Lift Stations

Upon completion of this lesson the student will be able to:

- Demonstrate understanding of Lift Station vocabulary
- Demonstrate understanding of Lift Station components and their function
- Demonstrate understanding of Lift Station operational requirements
- Demonstrate understanding of Lift Station maintenance requirements

#### Collection System Testing and Inspections

Upon completion of this lesson the student will be able to:

- Demonstrate understanding of the purpose of sewer system inspections for operational and maintenance problems
- Demonstrate understanding of procedures for inspecting manholes
- Demonstrate understanding of procedures for closed circuit television inspections of sewer systems
- Demonstrate understanding of Smoke testing procedures
- Demonstrate understanding of Dye testing procedures

#### Collection System Rehabilitation

Upon completion of this lesson the student will be able to:

- Demonstrate understanding of Piping
- Demonstrate understanding of Service connections
- Demonstrate understanding of Manholes

#### Collection System Safety

Upon completion of this lesson the student will be able to:

- Demonstrate understanding of Safety related terminology
- Demonstrate understanding of Trenching safety requirements
- Demonstrate understanding of Confined Space safety requirements
- Demonstrate understanding of Lockout/Tagout requirements
- Demonstrate understanding of Traffic Diversion procedures
- Demonstrate understanding of Electrical Safety procedures

### Trenching and Excavation

Upon completion of this lesson the student will be able to:

- Explain proper safety precautions
- Identify key concepts related to planning and execution of Trenching projects
- Identify key concepts related to planning and execution of Excavation projects

### Traffic Control

Upon completion of this lesson the student will be able to:

- Explain proper safety precautions
- Explain standard traffic control measures

### Unit Conversions

Upon completion of this lesson the student will be able to:

- Define what a unit is
- Define what an equivalent is
- Demonstrate how units and equivalents are used to solve math problems

### Using Formulas

Upon completion of this lesson the student will be able to:

- Define what a formula is
- Demonstrate how a formula is used
- Demonstrate how formulas are rearranged
- Demonstrate how to solve math problems using formulas

### Understanding Percentages

Upon completion of this lesson the student will be able to:

- Demonstrate how to convert between fractions and percentages
- Demonstrate how to convert between decimals and percentages

### Area Calculations

Upon completion of this lesson the student will be able to:

- Demonstrate how to solve for the area of a square
- Demonstrate how to solve for the area of a rectangle
- Demonstrate how to solve for the area of a circle
- Demonstrate how to solve for the area of a triangle

### Volume Calculations

Upon completion of this lesson the student will be able to:

- Demonstrate how to solve for the area of a square
- Demonstrate how to solve for the area of a rectangle
- Demonstrate how to solve for the area of a circle
- Demonstrate how to solve for the area of a triangle

### Velocity and Flow Rate

Upon completion of this lesson the student will be able to:

- Define velocity
- Demonstrate how velocity is calculated

- Define flow rate
- Demonstrate how flow rate is calculated

#### Other Collection System Math Topics

Upon completion of this lesson the student will be able to:

- Solve math problems that are common for collection system operators

#### **Support**

Students can contact our student support staff with any course-related, content-related or technology-related inquiries.

Our office hours are Monday-Thursday, 9-5 CT, and Friday 9-12 CT.

#### **Contact Info**

Phone Number: (661) 874-1655

General Course Inquiries: [Info@americanwatercollege.org](mailto:Info@americanwatercollege.org)