

**CUYAMACA COLLEGE**  
**COURSE OUTLINE OF RECORD**

**Center for Water Studies 282 – Cross-Connection Control Specialist**

3 hours lecture, 3 units

**Catalog Description**

Study of the administrative and technical procedures required for a cross-connection control program, including system inspections, hazard evaluation, identification of cross-connection problems and backflow prevention devices, shut-down tests, and reclaimed water systems. Preparation for American Water Works Association (AWWA) Cross-Connection Specialist certification exam.

**Prerequisite**

None

**Course Content**

- 1) Introduction to cross-connection programs
- 2) Codes and regulations
- 3) Types and scope of programs
- 4) Manual and computer filing and recordkeeping
- 5) Backflow prevention devices: installation and use
- 6) Field surveys and hazard recognition
- 7) On-site inspections
- 8) Analyzing and evaluating cross-connection control reports
- 9) Correction notices and follow-up inspections
- 10) Enforcement of backflow prevention device testing
- 11) Water reclamation and cross-connection control
- 12) Potable/reclaimed and recycled water
- 13) Indirect reuse of reclaimed water
- 14) Gray water systems and cross-connection control
- 15) Customer relations and enforcement
- 16) Employment opportunities

**Course Objectives**

Students will be able to:

- 1) Interpret Title 17 of the California Code of Regulations and apply it to the administration of a cross-connection control program.
- 2) Set up a filing system for inspections, test reports and letters of correspondence using both manual and computer-based systems.
- 3) Conduct inspections, evaluate degrees of hazard and write proper inspection reports.
- 4) Analyze and identify cross-connection problems that exist on the customer's premises.
- 5) Write correction notices to include a statement of the problem, steps necessary to correct the problem, and acceptable time frames for the correction.
- 6) Analyze and evaluate backflow prevention test report forms.
- 7) Describe how section 1003 of the Uniform Plumbing Code deals with post meter backflow devices.
- 8) Conduct reclaimed water cross-connection control inspections as specified in section 6002 et al, of Title 22, California Code of Regulation; includes shut down tests, coverage and signage.
- 9) Compare and contrast various types of finished products in reclaimed and potable water treatment systems.
- 10) Identify approved uses of reclaimed water and restrictions on its use.

- 11) Analyze and identify cross-connection problems that exist on the customer's premises.
- 12) Successfully pass the AWWA Cross-Connection Specialist certification exam.

**Method of Evaluation**

A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration or, where appropriate, the symbol system.

- 1) Projects, writing assignments, quizzes/exams which measure students' ability to describe and analyze the administrative and technical procedures required for a cross-connection program including system inspections, hazard evaluation, identification of cross-connection problems and backflow prevention devices, shut-down tests, and reclaimed water systems.
- 2) Midterm (objective, essay)
- 3) Final exam (objective, essay)
- 4) Projects and assignments utilizing the Field Operations Skills Yard

**Special Materials Required of Student**

None

**Minimum Instructional Facilities**

Smart classroom

**Method of Instruction**

- 1) Lecture and demonstration
- 2) Group discussion
- 3) Field trip
- 4) Demonstrations utilizing the Field Operations Skills Yard

**Out-of-Class Assignments**

- 1) Reading assignments
- 2) Writing assignments
- 3) Projects

**Texts and References**

- 1) Required (representative example): Schwartz, Paul H. *Manual of Cross Connection Control*. 10th edition. University of Southern California Foundation for Cross Connection Control and Hydraulic Research, 2010.
- 2) Supplemental:
  - a. *Uniform Plumbing Code*, 2018
  - b. *Title 17 – California Code of Regulations*
  - c. *Title 22 – California Code of regulations*

**Student Learning Outcomes**

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

- 1) Explain the need for backflow protection and cross-connection control including identifying approved uses of reclaimed water and the restrictions on its use.
- 2) Explain health and safety issues and concerns relative to both the processing and distribution of reclaimed water.
- 3) Identify all backflow prevention devices and be able to explain how each of these devices function.
- 4) Describe reclaimed water systems from production to distribution, the current status of gray water systems, and the laws governing both.
- 5) Describe the key components of a reclaimed water cross-connection control inspection as specified in section 6002 et al, of Title 22, California Code of Regulation; includes shut down tests, coverage and signage.