



**Certificate of Proficiency
Water Equipment Operation and Maintenance**

Students will be introduced to the operation and maintenance of mechanical and electrical equipment associated with the Water and Wastewater industries. Courses in this program will assist students in obtaining related industry certifications from the American Water Works Association and the Water Environment Federation.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Analyze the performance of a wide variety of equipment items used in the water and wastewater industry.

Certificate requirements	Units
Water Utility Science 063, Electrical Wiring and Controls for Operators	3
Water Utility Science 064, Pumps and Pumping	3
OR Water Utility Science 060, Water Utility Maintenance and Construction (3)	2-3
OR Water Utility Science 065, Backflow Prevention Devices (2)	
Water Utility Science 083, Collection Systems	3
TOTAL	11-12

**Certificate of Proficiency
Water Utility Management**

The Certificate of Proficiency in Water Utility Management program provides current and potential employees with the supervisory and management skills needed to become the future leaders in water and wastewater organizations. Courses explore general principles of project management, supervision, and business communications, as well as specific management issues related to the Water and Wastewater industries.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Formulate and evaluate a project team to execute routine and special missions in the Water and Wastewater industries.

Certificate requirements	Units
Public Works 080/Business 090, Principles of Project Management	3
Computer Information Systems 101, Introduction to Microsoft Office	3
OR Business 121/Management 121, Human Relations and Organizational Behavior	3
OR Management 135, Human Resource Management	
OR Management 122, Business Communications	3
OR Business 222, Business Writing	
Management 123, Supervision	3
Water Utility Science 092, Water Utility Management	1
TOTAL	16

Courses

**Water Utility Science 020
Introduction to Water Science**

Unit(s): 3.0

Class Hours: 54 Lecture total.

An overview of Water Science topics including water sources and supply, water quality and regulations, water transmission and distribution, and treatment of water and wastewater. Discussions will include applicable science and math principles, current events, and Water careers. Optional field trips may be offered.

Water Utility Science 048

Wastewater Operator Exam Review

Unit(s): 0.5

Class Hours: 9 Lecture total.

Recommended Preparation: Water Utility Science 081

This course provides a comprehensive review of topics from multiple courses in the Water Utility Science program in order to prepare students for the California State Water Resources Control Board, Wastewater Treatment Operator examinations.

Water Utility Science 050

Water Mathematics and Hydraulics

Unit(s): 3.0

Class Hours: 54 Lecture total.

Recommended Preparation: Mathematics N06 or equivalent skills as measured by the Mathematics Level 1 Exam.

Practical application of mathematics to perform unit conversions and to calculate areas, volumes, flow rates, pressures, velocities, chemical dosages and related hydraulic calculations used in water system operations.

Water Utility Science 052

Water Conservation Practitioner

Unit(s): 3.0

Class Hours: 54 Lecture total.

Theoretical and practical training in applied water use efficiency. Includes residential, commercial, and landscape customers, water uses, budgets, demand management, water audits, best management practices, rate structures, program design and management. Preparation for American Water Works Association (AWWA) Grade 1 and 2 Water Conservation Practitioner certification. Optional field trips may be offered.

Water Utility Science 053

Water Reclamation and Reuse

Unit(s): 3.0

Class Hours: 54 Lecture total.

Fundamentals of reclaimed water, includes case studies and history of reclaimed water development. Planning, design and construction of reclaimed distribution systems. Problems regarding marketing, legislation and regulations for reclaimed water. Includes microbiology and health/safety issues. Optional field trips may be offered.

Water Utility Science 054

Advanced Treatment Exam Preparation

Unit(s): 0.5

Class Hours: 9 Lecture total.

This course provides a comprehensive review of topics from multiple courses in the Water Utility Science program in order to prepare students for the California State Water Resources Control Board, Water Treatment Operator T3 and T4 examinations.

Water Utility Science 056

Treatment Exam Preparation

Unit(s): 0.5

Class Hours: 9 Lecture total.

This course provides a comprehensive review of topics from multiple courses in the Water Utility Science program in order to prepare students for the California State Water Resources Control Board, Water Treatment Operator T1 and T2 examinations.

Water Utility Science 057

Water Distribution Test Preparation

Unit(s): 0.5

Class Hours: 9 Lecture total.

This course provides a comprehensive review of topics from multiple courses in the Water Utility Science program in order to prepare students for the California State Water Resources Control Board, Water Distribution Operator D1 and D2 examinations.