

# WATR 151: WATER RESOURCES AND DISTRIBUTION I

## Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2023
Credits:	3
Total Contact Hours:	54
Lecture Hours :	54
Lab Hours:	0
Hours Arranged:	0
Outside of Class Hours:	108
Strongly Recommended:	WATR 150; MATH 144.
Transferable to CSU:	No
Transferable to UC:	No
Grading Method:	Standard Letter, Pass/No Pass

## Catalog Course Description

A course designed for water distribution systems operators. Topics include: water production, types of reservoirs, water lines, pumps, water chemistry, water treatment, arithmetic, chemical treatment, appurtenances, method of installation, repair of facilities, back up theory, and administrative functions behind the distribution system. This course prepares the student for the D2 and D3 Water Distribution Operator's examinations administered by the State Water Resources Control Board. 54 lecture hours.

## Course Objectives

- Explain water production and distribution
- Describe the typical sources of supply for a public water system and the variability with related treatment requirements of each
- List the major health problems in public water systems and explain common methods used to correct them
- Explain pipe material requirements and installation codes
- Define common problems occurring in pumping plants and formulate appropriate solutions
- Explain the application of the theory of hydraulics to actual design of distribution systems, pumps and reservoirs
- Identify pipeline materials used in drinking water systems along with the specific application, required maintenance, and advantages/disadvantages of each
- Articulate the definition, purpose, configuration, appurtenances, operation and maintenance of a modern water distribution system
- Describe the types of metering equipment used in water systems along with the specific application, required maintenance, and advantages/disadvantages of each type
- Articulate specific OSHA regulations related to trenching, shoring, traffic control, confined spaces, lock-out-tag-out, hearing protection, and respiratory protection

## Major Course Content

1. Introduction to Water Distribution System
2. Public Health Aspects of Water Production
3. Basic Hydraulics
4. Functions of Water Distribution Systems
5. Water Reservoirs
6. Water Pipe Materials and Installation
7. Pipe Laying, Testing, Disinfection, etc.
8. Pipeline Appurtenances
9. Valves and Valving
10. Special Valves, Water Pipelines, Maps and Plans
11. Water Meters and Services
12. Pumping Plants and Water Treatment
13. Water System Automation
14. Safety Practices
15. Public relations
16. Protection and rehabilitation of existing systems

## Suggested Reading Other Than Required Textbook

California State Water Resources Control Board website and media releases; American Water Works Association website and articles.

## Examples of Required Writing Assignments

Describe water quality and health issues associated with public water systems; explain distribution system materials and appurtenances; calculate pressure and costs per Kw hour.

## Examples of Outside Assignments

Describe water quality and health issues associated with public water systems; explain distribution system materials and appurtenances; calculate pressure and costs per Kw hour; access print, electronic, and AV resources, including databases.

## Instruction Type(s)

Lecture, Online Education Lecture