

Water Technology Education

A.A. DEGREE: 60 units

CERTIFICATE OF ACHIEVEMENT: 28-32 units

DESCRIPTION

The Water Technology Education program is designed to teach students the key steps, processes, and current technology involved in operating modern water treatment plants. Students who satisfactorily complete the required courses in this degree will qualify to take the California Department of Public Health (CDPH) Grade T-1 and T-2 Water Treatment Plant Operator examinations required for certification and employment at water treatment plants.

PROGRAM LEARNING OUTCOMES

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

- ▶ Identify in detail characteristics and sources of ground water and surface water supplies and explain the effects on quality of geological formations, stratifications and watershed management.
- ▶ Compare and contrast the basic principles of each water treatment process and list them in order performed.
- ▶ Identify and classify water distribution system components.
- ▶ Explain pump cavitation, corrosion, cross-connection, air valves, head loss and main flushing in relation to water and wastewater collection, distribution and treatment.
- ▶ Explain and prepare a plan for the use of chlorine including the characteristics of and methods for storing, feeding and measuring chlorine.
- ▶ Determine the methods used for coagulation, flocculation and sedimentation.
- ▶ Compare and contrast the six basic water quality parameters and explain in detail microbiological and chemical components.
- ▶ Demonstrate the regulations for monitoring water quality and performing water treatment.
- ▶ Perform basic mathematical calculations and conversions relating to water flow, pressure, volume, velocity, chemical dosage and hydraulic and organic loading.
- ▶ Determine appropriate safety procedures applicable to service and operation of water treatment and distribution systems.

CORE COURSES: (21 UNITS)

WTRM101	Introduction to Water, Wastewater Technology . . .	3
WTRM102	Beginning Water, Wastewater, Distribution Math.	3
WTRM103	Introduction to Electrical and Instrumentation . . .	3
	Processes.	3
WTRM104	Motors and Pumps, Operation and Maintenance	3
WTRM105	Water Distribution 1	3
WTRM106	Beginning Water Treatment Plant Operation	3

WTRM109	Advanced Water Treatment Plant Operation	3
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RESTRICTED ELECTIVES/ LIST A: SELECT ONE OF THE FOLLOWING (3 UNITS)

WTRM107	Beginning Wastewater Treatment Operations . . .	3
WTRM110	Advanced Water/Wastewater/Distribution Math . .	3
WTRM111	Advanced Wastewater Treatment Plant Operation	3
WTRM112	Applied Hydraulics.	3
WTRM113	Beginning Wastewater Collection	3
WTRM114	Laboratory Analysis for Water, Wastewater	3
WTRM115	Supervision.	3
WTRM132	Advanced Water Distribution	3

LIST B: SELECT TWO OF THE FOLLOWING)UNITS: (4 - 8 UNITS)

WTRM116	Advanced Wastewater Collections.	3
WTRM118	Introduction to Occupational Health and Safety . .	3
WTRM121	Mechanical Maintenance	3
WTRM133	Water Conservation	3
WTRM134	Industrial Wastewater / Stormwater Management .	4
WTRM235	Pollution Prevention	3
WTRM190	Occupational Work Experience/Water/Wastewater .	1- 4
	Technology.	

FOR CERTIFICATE COMPLETE CORE COURSES: 21 UNITS

FOR ASSOCIATE DEGREE COMPLETE CORE (21 UNITS) , LIST A (3 UNITS) AND LIST B (4-8 UNITS), AND GENERAL EDUCATION REQUIREMENTS: 35 - 39 UNITS

A student may complete the Gavilan College A.A./A.S. general education, the CSU-GE Breadth or the IGETC pattern, plus sufficient electives to meet a 60 unit total. See a counselor for details.

NOTE: A course may be used to satisfy both general education and major courses. See "Double Counting Rule".