

## Wastewater Technology Education

A.A. DEGREE: 60 units

CERTIFICATE OF ACHIEVEMENT: 21 units

### DESCRIPTION

The Wastewater Technology Education program is designed to prepare students to operate or control an entire system of machines, often through the use of control boards, to transfer or treat wastewater. This includes monitoring gauges, dials or other indicators to make sure machines are working properly and troubleshooting and/or performing routine maintenance on equipment. Students completing the required courses for this degree will qualify to take the SWRCB certification examination for the Grade 1 Wastewater Plant Operator as well as nearly a dozen wastewater related certification examinations offered by CWEA.

### PROGRAM LEARNING OUTCOMES

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

- ▶ Describe wastewater collection system components.
- ▶ Identify the characteristics and sources of municipal sewage.
- ▶ Define wastewater collection system and wastewater treatment plant terminology.
- ▶ Describe the basic principles of conventional wastewater treatment.
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- ▶ Compare and contrast wastewater treatment unit processes including preliminary, primary, secondary and tertiary treatment.
- ▶ Perform basic mathematical calculations and conversions relating to water flow, pressure, volume, velocity, chemical dosage and hydraulic and organic loading.
- ▶ Recognize and describe safety procedures applicable to service and operation of wastewater collection and treatment systems.

### PROGRAM REQUIREMENTS:

#### 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
WTRM107	Beginning Wastewater Treatment Operations . . . .	3
WTRM111	Advanced Wastewater Treatment Plant Operation	3
WTRM113	Beginning Wastewater Collection. . . . .	3

#### LIST A: ELECTIVES: (3 UNITS) SELECT ONE OF THE FOLLOWING:

WTRM109	Advanced Water Treatment Plant Operation . . . . .	3
WTRM110	Advanced Water/Wastewater/Distribution Math . . .	3
WTRM112	Applied Hydraulics . . . . .	3
WTRM114	Laboratory Analysis for Water, Wastewater . . . . .	3
WTRM115	Supervision . . . . .	3
WTRM132	Advanced Water Distribution . . . . .	3

#### LIST B: SELECT TWO OF THE FOLLOWING (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 . . . . .	1-4

#### 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".