

# CTE Program Proposal

**NAME OF COLLEGE:** Clovis Community College

**FACULTY CONTACT:** Derek Dormedy

**DATE:** 11/25/2015

**PROGRAM NAME:** Water Treatment and Distribution

New Program Proposal       Program Revision Proposal

**TYPE OF DEGREE:**

- Certificate
- Associate of Arts
- Associate of Science
- Associate of Arts for Transfer
- Associate of Science for Transfer
- Other

**ATTACHMENTS REQUIRED:**

These are included in this document:  
Labor/Job Market Data and Analysis  
Advisory Committee Meeting Minutes  
Employer Survey

## A. Appropriateness to Mission

### 1. Statement of Program Goals and Objectives

*Identify the goals and objectives of the program. For CTE programs, the statement must include the main competencies students will have achieved that are required for a specific occupation. The statement must, at a minimum, clearly indicate the specific occupations or fields the program will prepare students to enter and the basic occupational competencies students will acquire.*

The Drinking Water Treatment and Distribution Career Technical Education (C.T.E.) program has two main goals; 1) to prepare students to take the state water resources control board exams for levels 1-5 for water treatment, and water distribution and 2) to prepare students for employment or advancement in the water treatment career field. These goals match those listed in the Educational Code 66010.4, specifically the vocational specific parts, 1a, 2a, and 3. The goals for this Career Technical Education (C.T.E.) program include job skills, knowledge, problem-solving skills and opportunity for advancement in the drinking water plant, waste water treatment plant, and water distribution fields.

## 2. Catalog Description

*Enter exactly as it will appear in the catalog, including program outcomes. The description must also*

- *Convey the certificate's goals(s) and objectives*
- *Provide an overview of the knowledge and skills that students who complete the requirements must demonstrate (student learning outcomes)*
- *List all prerequisite skills or enrollment limitations*
- *Mention any risks, such as occupations that are inherently competitive or low-salaried and/or occupational areas where inexperienced graduates are not generally hired.*
- *For CTE programs, the description must list the potential careers students may enter upon completion.*
- *Convey what the student may expect as an outcome*

The drinking water treatment and distribution certificate program is designed to provide skills and training to current and future water system employees. Students can learn about treatment plant functions including pumping water, engineering systems, treatment strategies, dosing calculations and meeting state standards. The certificate also satisfies the state requirement to take the State Water Resources Quality Control Board certification exams for levels 1 through 5. Students can take basic and advanced courses and earn a certificate of achievement for the course sequence. There is another sequence of classes for the waste water treatment certificate of achievement. Program advisories include English 125/126 and Math 201.

### 3. Program Requirements

*The program requirements must be consistent with the catalog description. The number of units, specific course requirements and the sequence of the courses must be coherent, complete and appropriate. Display the program requirements in a table format that includes all courses required for completion of the program (core requirements and required or restricted electives), subtotal of core units, and total program units. For each course, indicate the course department number, course title, and unit value.*

#### Display of Program Requirements

<b>Core Courses</b>	<b>Title</b>	<b>Units</b>
WTD 101	Basic Drinking Water Treatment	<b>3</b>
WTD 102	Advanced Drinking Water Treatment	<b>3</b>
WTD 112	Water Distribution	<b>3</b>
WTD 115	Drinking Water Math	<b>3</b>
	<b>Total Core Courses</b>	<b>12</b>

In addition to the core courses, the student must take at least XXX units from the following courses:

<b>Elective Courses</b>	<b>Title</b>	<b>Units</b>
OT 17	Job Retention and Responsibilities	<b>1</b>
COUN 47	Learning Strategies	<b>2</b>
ENGL 125 or 1A	Reading and Comprehension	<b>4</b>
	<b>Total Elective Courses</b>	<b>7</b>

<b>Total Units Required for Certificate</b>	<b>19</b>
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#### 4. Background and Rationale

*Given the stated goals and objectives, address the role the proposed program will fulfill in the college's mission and curriculum offerings. This discussion may include some history of the program proposal origins, a description of the program purpose, and/or the program's relevancy for the region and college.*

*The proposal must demonstrate a need for the program that meets the stated goals and objectives in the region the college proposes to serve with the certificate. A proposed new certificate must not cause undue competition with an existing program at another college.*

The water treatment program was initiated when the industry group approached the college and suggested that the courses be taught at our campus. There is a need in the service area of our district because no other college was offering the courses. Water plant employees were traveling to other colleges or taking on-line classes to qualify to take the state exams. A water advisory group of about 5-7 employees/supervisors/instructors have met periodically to help with curriculum development and program planning.

## B. Need for Program

### 5. Enrollment and Completer Projections

*This item should address and justify the number of projected students or “annual completers” to be awarded the certificate each year after the program is fully established.*

We expect 20-30 students in each class section (higher at first because of a need that has not been filled) and a completion rate near 90%. Estimated annual completers will be 18 – 27 students earning the certificate each year after the first year.

### 6. Place of Program in Curriculum/Similar Programs

*Review the college’s existing program inventory, then address the following questions:*

- *Do any active inventory records need to be made inactive or changed in connection with the approval or the proposed program? If yes, please specify.*
- *Does the program replace any existing program(s) on the college’s inventory? Provide relevant details if this program is related to the termination or scaling down of another program(s).*
- *What related programs are offered by the college?*

This is the first CTE program created at Clovis Community College.  
The active inventory records will need to be modified to include this program.  
This program does not replace any existing programs.  
The only related program is the waste water treatment certificate program.

## 7. Similar Programs at Other Colleges in Service Area

*Describe all similar programs offered by colleges within the college service area. If the proposed program has a different emphasis than similar programs at other colleges, targets a different market, demonstrates state-of-the-art offerings, or for a number of reasons will be a stronger program, documentation and/or explanation need to be provided.*

There are no other colleges in the State Center Community College District service area that actively offer these classes.

## 8. Labor Market Information and Analysis

*Current labor market information and analysis, or other comparable information, must show that jobs are available for program completers within the local service area of the individual college and/or that job enhancement or promotion justifies the proposed curriculum.*

### Water Treatment Operator



## Definition

Under general supervision, operates, maintains and repairs a wide variety of complex machinery and equipment in a water treatment plant and/or pumping station or related facility. Performs related duties as assigned.

In 1998, the Federal Environmental Protection Agency established guidelines for operator certification. The state of California has five operator grades, T1-T5. A T1 certificate is the lowest grade and the T5 is the highest. Progression through the grades requires a combination of specialized training courses and plant experience.

Specialized training courses can be obtained from the community colleges in the BAYWORK Training Opportunity Map or correspondence courses through the Office of Water Programs at the California State University, Sacramento. Plant experience must be obtained by working or volunteering at a water utility.

[Search for Training Opportunities](#)

[Search for Employers](#)

## Profile of water treatment operators

Sheree English [Profile](#)

Dave Calvo [Profile](#)

Julia Chan [Profile](#) [Video](#)

Luis Cuellar [Profile](#)

Stephen Fong [Profile](#) [Video](#)

Jeff Madden [Profile](#) [Video](#)

Daniel McVey [Profile](#)

Sylvia Ronco [Profile](#)



Anthony Scott

[Profile](#)

[Video](#)

James Sparks

[Profile](#)

[Video](#)

## Example Knowledge, Skills, and Abilities

**Working knowledge of:** The operation and maintenance of water treatment plants; methods and practices, including safety regulations pertaining to the work; water treatment and related equipment servicing, calibrating, and repair; mechanical, electrical, and hydraulic principles; principles and practices of standardized water quality tests; state and federal regulations governing the operation of a water treatment plant.

**General knowledge of:** Uses and principles of computerized electronic equipment in the collection, storage and interpretation of operational data related to water treatment and distribution; the operation and maintenance of water distribution systems; inventory control of water treatment chemicals, fuel and supplies; routine operating report generation; current technological developments in water treatment, distribution and water quality.

**Skill in:** Operating water treatment system equipment including automatic control devices and plant equipment; maintaining safe and reliable water supply to customers; servicing, repairing and calibrating plant equipment; operating without immediate or detailed supervision.

**Ability to:** Establish and maintain effective working relationships; communicate effectively, verbally and in writing; prepare clear and concise reports; recognize unusual, inefficient, or dangerous operating conditions and take appropriate action; accurately read, interpret and record data from gauges, meters and a SCADA system; read and interpret schematic drawings showing plant piping, alarms, mechanical, electrical controls, valves, and related instrumentation; observe, inspect, analyze system equipment and facilities; and compile, evaluate and analyze operational data and information and recommend or take appropriate actions; and learn advanced SCADA System techniques and complex analyses of water treatment system requirements; to operate and maintain the distribution system on an emergency or as needed basis.

## Example Experience and Training

Four years journey-level Operator and/or Stationary Engineer experience in the maintenance, repair and operation of a variety of mechanical and electrical pumping and related plant machinery of a water or wastewater treatment plant; or four years journey-level experience as a Marine Engineer performing duties in the areas of maintenance, repair and operation of a variety of mechanical and electrical pumping and related machinery; or completion of a recognized four year Stationary Engineer apprenticeship program.

## Example Monthly Salary Range

**Apprentice/Trainee** \$5,200 to \$6,400

**Journey-level** \$6,300 to \$7,500

**Supervisory** \$8,000 to \$9,500

*Source: BAYWORK Salary Survey, 2014.*

[Search For Jobs](#)

[Read More](#)

- See more at: <http://baywork.org/career-path/water-treatment-operator/#sthash.TWt7LHY8.dpuf>

## 9. Employer Survey

*Discuss in this area, or as a separate attachment, employer input in regard to necessity of program and number of jobs available.*

[www.maritime.edu/~sullivan](http://www.maritime.edu/~sullivan)

### Executive Summary

In 2009, the San Francisco Bay and Greater Silicon Valley Centers of Excellence (COE) partnered with BAYWORK (the Bay Area Water/Wastewater Workforce Development Collaborative) to survey water and wastewater agencies and utilities in six Bay Area counties.<sup>1</sup> The research study was designed to identify the workforce needs of employers related to seven mission critical occupations:

- Water Treatment Operator
- Water Distribution Operator
- Wastewater Treatment Operator
- Wastewater Collections Operator
- Mechanic/Machinist
- Electrician/Electrician Technician
- Electronic Maintenance Technician/Instrument Technician

These occupations were selected for study by BAYWORK because (1) their work is essential to reliable water and wastewater operations and (2) there were concerns about whether sufficient numbers of qualified candidates would be available to fill upcoming vacancies. The segment of the workforce being studied in detail in this report is primarily the technician level/mid-level occupations most closely aligned with community college education programs, as opposed to professional level occupations.

Data about the demand for skilled workers in this industry was needed to inform community colleges. If the need was demonstrated, colleges could respond by providing training and education programs to prepare workers for projected openings. With this in mind, employers were surveyed from July through September 2009. The workforce study focused on gathering the following quantitative and qualitative data:

- The current number and size of utilities/agencies, as well as geographic concentration.
- Future job growth over the next one to three years in water and wastewater occupations relevant to community colleges.
- Employer needs and challenges in hiring and training employees.
- Skill sets and education requirements needed for these key occupations.
- Career ladders and lattices within the water and wastewater sector.
- Current and future salary ranges for these key occupations.
- Industry interest in accessing community college education and training programs.

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<sup>1</sup>San Francisco, Marin, Alameda, Contra Costa, San Mateo, Santa Clara

We did not complete an employer survey but information is included in the area above.

## **10. Explanation of Employer Relationship**

*Whenever a program is to be offered in close cooperation with one or more specific employers, a discussion of the relationship must be provided.*

The relationship between Clovis Community College and water treatment facilities will be coordinated through our advisory committee.

## 11. List of Members of Advisory Committee

*This list must include advisory committee member names, job titles, and business affiliations.*

Glenn Knapp  
Dept. of Public Utilities  
2101 G Street, Building A  
Fresno, CA 93706  
(559) 621-1624  
Glenn.Knapp@fresno.gov

Arnold Hatai, P.E.  
State Water Resources Control Board  
265 W. Bullard Avenue, Suite 101  
Fresno, CA 93704  
(559) 447-3135  
[Arnold.Hatai@waterboards.ca.gov](mailto:Arnold.Hatai@waterboards.ca.gov)

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Water System Supervisor/Production  
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(559) 621-5369  
Cynthia.Fischer@fresno.gov

Russell Guilliams  
Supervisor Treatment Facilities  
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Fresno, CA 93703-2927  
(559) 621-5829  
[Russell.Guilliams@fresno.gov](mailto:Russell.Guilliams@fresno.gov)

Charles Francis, Coordinator Herndon Campus (Clovis Community College)

Derek Dormedy, Chemistry Instructor (Clovis Community College)

Lee Brown, Dean of Instruction (Clovis Community College)

## **12. Recommendation of Advisory Committee**

*In a separate attachment, provide minutes of the advisory committee meetings at which the program was discussed and approved, with relevant areas highlighted, as well as a summary of the advisory committee recommendations.*

**Appendix 1.A Agendas and notes from Water Advisory Group meetings, 6/11/15.**

next Wtu July 17

Clovis Community College Center  
Herndon Campus HC-101  
Water Classes  
Thursday, June 11, 2015  
3:00 p.m.  
Agenda

- I. Introductions
- II. Purpose: Review the Course Outline of Record (COR) for the following courses:
  - a. Basic Water Treatment
  - b. Advanced Water Treatment
  - c. Basic Water Distribution
  - d. Advanced Water Distribution
  - e. Water Treatment and Distribution Math
- III. Instructor line up
  - a. Basic Water Treatment – Glenn Knapp
  - b. Advanced Water Treatment - ?
  - c. Basic Water Distribution - ?
  - d. Advanced Water Distribution - ?
  - e. Water Treatment and Distribution Math – Arnold Hatai
- IV. Next Meeting Date & Time – TBD
- V. Adjournment

*consultants state - new reqs.*

Seminar/workshop      Continuing Ed. hours

WTD 130

May → Oct  
5 months

4 session  
~~8 week~~  
review  
course  
4  
exam

Appendix 1.B Agendas and notes from Water Advisory Group meetings, 7/17/15.

Clovis Community College  
Herndon Campus HC-101  
Water Treatment Advisory Committee Meeting  
Friday, July 17, 2015  
3:00 p.m.  
Agenda

*Curric. comm*  
*8/27 2:30 → 4*  
*1-2:15 - but 2:30 → 5:20*

- I. Introductions
- II. Clovis Community College is granted full College status as of June 30, 2015
- III. The following courses are already on the curriculum inventory for Clovis Community College
  - a. WTD-106 Basic Wastewater Treatment & Distribution
  - b. WTD-107 Advanced Wastewater Treatment
  - c. WTD-114 Water Mathematics
- IV. Review the Course Outline of Record (COR) for the following courses:
  - a. Basic Water Treatment WTD-101
  - b. Advanced Water Treatment WTD-102
  - c. Basic Water Distribution WTD-112
  - d. Advanced Water Distribution (Discussion on why not needed) WTD-113
  - e. Water Treatment and Distribution Math WTD-114?
- V. The Curriculum Committee meets Thursday, August 27, 2015 from 2:30 – 4:00 p.m. The above courses will be on the agenda

*already finished*

- VI. Instructor line up & scheduling of classes to align with State Certifications
  - 10/ a. Basic Water Treatment – Glenn Knapp
  - 102/ b. Advanced Water Treatment – Cynthia Fisher
  - 112/ c. Basic Water Distribution – Russell G. Williams
  - 114/ d. Water Treatment and Distribution Math – Arnold Hatai

*+DD*  
*+Charles*  
*Francis*

VII. Next Meeting Date & Time – TBD

*(Guilliams)*

VIII. Adjournment

<i>Fall 15</i>	<i>Sp 16</i>	
<i>106</i>	<i>101</i>	<i>107</i>
<i>114</i>	<i>102</i>	
<i>107</i>	<del><i>107</i></del>	
	<i>112</i>	
	<i>114</i>	



## C. Curriculum Standards

### 13. Display of Proposed Sequence

First Semester	Units
WTD 101, Basic Drinking Water Treatment	3
WTD 115, Drinking Water Math	3
<b>Total</b>	<b>6</b>

Second Semester	Units
WTD 102, Advanced Drinking Water Treatment	3
WTD 112, Water Distribution	3
<b>Total</b>	<b>6</b>

Third Semester	Units
OT 17, Job Retention and Responsibilities	1
COUN 47, Learning Strategies	2
ENGL 125 or 1A, Reading and Comprehension	4
<b>Total</b>	<b>7</b>

Fourth Semester	Units
<b>Total</b>	

### 14. Transfer Applicability (if applicable)

Only English 1A would be transfer applicable.

## D. Adequate Resources and Compliance

### 15. Library and Learning Resources Plan

*Discuss resources currently available for course support, as well as resources recommended for purchase to further support the course.*

The library on the Clovis Community College campus is available for all students to use. All students also has access to our free tutoring center.

### 16. Facilities and Equipment Plan

*Discuss facilities and equipment currently available for course support, as well as facilities and equipment recommended for purchase to further support the course.*

The facilities that are currently available include the Clovis Community College main campus which includes a full complement of science classrooms and labs. In the science labs are instrumentation and equipment that can be used and staff that can facilitate setting up and preparing the equipment for use in demonstrations and examples. There are a set of calculators, which are specified for use when students take the state certification exam, to use while they are taking the water math course. Also available are classrooms at the Herndon Campus which is about 2 miles south of the main campus.

### **17. Financial Support Plan**

*Discuss how the program, including faculty, will be funded.*

The program will be funded in the typical CTE funding streams through the Clovis Community College action plan process.

### **18. Faculty Qualifications and Availability**

*Discuss the discipline, qualifications and availability of faculty as it relates to the proposed program.*

The faculty for the program will be drawn from the local municipal water treatment facilities as recommended and approved by their supervisors and the faculty/Dean of Instruction at Clovis Community College.

### **19. Based on model curriculum (if applicable)**

*State the model curriculum on which the proposed program is based.*

N/A

## 20. Licensing or Accreditation Standards

*List any licensing, accreditation or certifications available to program completers.*

N/A

## 21. Student Selection and Fees

*If the program is selective, describe relevant entry criteria and the selection process for admission to the program. Specify all mandatory fees that students will incur for the program aside from the ordinary course enrollment fee.*

This program will not be selective and no program fees (aside from ordinary course enrollment fees and textbooks/supplies listed in the C.O.R.) are anticipated at this time.

Water Treatment Advisory Committee  
Meeting Minutes  
Friday, July 17, 2015  
3:00 p.m.

**I. Welcome and Introductions**

Attendees: Glenn Kanpp, P.E. (City of Fresno, Public Utilities Dept.), Arnold Hatia, P.E. (State Water Resources Control Board), Cynthia Fischer (City of Fresno, Water System Supervisor/Production), Russell Guilliams (City of Fresno, Treatment Facilities Supervisor), Derek Dormedy, PhD (Clovis Community College, chemistry instructor), Charles Francis (Clovis Community College Herndon Campus, Director).

**II. Announcement**

Clovis Community College is granted full college status as of June 30, 2015 by the Accrediting Commission for Community and Junior Colleges, Western Association of Schools and Colleges.

**III. Wastewater Treatment Program:**

The committee discussed the following courses that are already in the curriculum inventory for Clovis Community College for Wastewater Treatment.

a. WTD 106	Basic Wastewater Treatment & Distribution	3 units
b. WTD 107	Advanced Wastewater Treatment	3 units
c. WTD 114	Water Mathematics	<u>3 units</u>
		9 units

Dereck also pointed out that in order to obtain a Certificate of Achievement in Wastewater Treatment, the following courses are required:

d. COUN 47	Learning Strategies	2 units
e. OT 17	Job Retention/Responsibilities	1 unit
f. Engl 125, 126, 130 or 1A		<u>4 - 9 units</u>
		16 – 21 units

**IV. Drinking Water Treatment and Distribution Program**

Reviewed the Course Outline of Record (COR) for the following courses:

a. WTD 101	Basic Drinking Water Treatment	3 units
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b. WID 102	Advanced Drinking Water Treatment	3 units
c. WTD 112	Water Distribution	3 units
d. WTD 115	Drinking Water Math	3 units

It was also pointed out that in order to obtain a Certificate of Achievement in Drinking Water Treatment and Distribution, the following courses are required:

e. COUN 47	Learning Strategies	2 units
f. OT 17	Job Retention/Responsibilities	1 unit
g. Engl 125 or 1A	Reading and Comprehension	<u>4 units</u>
		19 units

After discussing and reviewing the above listed courses, the Advisory Committee approved them and agreed to submit them to the Curriculum Committee for approval.

**V. Approval of the Drinking Water Treatment and Distribution Program**

Derek announced that COR's for the Drinking Water Treatment and Distribution Program will be on the agenda of the Curriculum Committee for approval. The meeting is scheduled for August 27, 2015, from 2:30 p.m. to 4:00 p.m. Derek will make the presentations.

**VI. Discussion regarding instructors for the Waste Water and Water Treatment and Distribution courses**

The following instructors were assigned to the designated courses:

- a. Basic Wastewater Treatment & Distribution - Glenn Knapp
- b. Advanced Wastewater Treatment - Russell Guilliams
- c. Water Treatment and Distribution - Cynthia Fisher
- d. Water Treatment and Distribution Math - Arnold Hatai

**VII. Date and Time for Next Meeting**

Will be determined and announced

**VIII. Adjournment**

The meeting was adjourned at 5:05 p.m.