INSTRUCTIONAL COMPREHENSIVE PROGRAM PLANNING AND REVIEW (CPPR) For 2024

Only to be completed by those programs scheduled for the year according to the institutional comprehensive planning cycle for instructional programs (i.e., every four years for CTE programs and five years for all other instructional programs), which is produced by the Office of Instruction. Faculty should meet with their dean prior to beginning this process. Training is available to support faculty completing this work.

Cluster: 4 **Area of Study:** NA **Program:** Water Sciences & Operation

Current Academic Year: 2023-2024

Last Academic Year CPPR Completed: N/A   **Current Date:** March 2024

NARRATIVE: Instructional CPPR
Please use the following narrative outline:

I. **Describe how this program review was conducted, including how all program members were involved in the planning process.**

    The program review was written by part-time faculty member Raymond Dienzo, who is the sole instructor of this water sciences and operations program. Review of this inaugural program review was performed by David Fernandez, the Engineering & Technology Division Chair, and Oscar Ramos, the Dean of Instruction of Health and Wellness, Skilled Trades and Technology.

    GENERAL PROGRAM INFORMATION

    A. Program Mission

        The water sciences courses at Cuesta College, prepares individuals for challenging careers in the water treatment and distribution operation profession. Cuesta's program strives to offer its students the best foundation for transferring to a university program or entering the workforce.

    B. Please highlight any changes and improvements since the last Comprehensive Program Review. Be sure to specifically indicate those changes that have been made in the program in order to address equity gaps.

        Brief History of the Program

        The water sciences courses are under the Construction Technology program. Though these classes underwent some prefix and number changes, they were

the same curriculum. When Peter Lagomarsino led the program before his retirement in 2008, it was first known as CTECH 76 for the Basic Water Treatment Operations and CTECH 77 for the Water Distribution Systems Operations. The Basic Water Treatment Operations class underwent the following name changes: CTECH 176 and CTCH 270. The course then got its own prefix in Spring 2021. It is now called WATR 270 to this day. The Water Distribution class underwent similar name changes, now called WATR 272. The purpose of these name changes was to garner more enrollment. Prospective students were unaware that Water courses were offered at Cuesta College; most students did not think to search under Construction Technology. WATR prefix allowed for more visibility but has had some challenges due to the pandemic. Our program is a hands-on type of program that caters to students looking for careers that can use their mechanical skills. In other words, though these careers have a technical academic side, they also utilize their hands-on technical abilities.

Historically, enrollment has consisted of the engineer/design HS student and the general construction and trades person. These courses provide a career alternative for students seeking something other than the academic university route. The Water Treatment and Water Distribution operations courses open doors to a rewarding career field.

This is the inaugural effort of the comprehensive program review.

C. List all current full-time and part-time faculty in the program.

- Raymond Dienzo – Part-time Faculty

II. **PROGRAM SUPPORT OF DISTRICT'S MISSION STATEMENT, INSTITUTIONAL GOALS, INSTITUTIONAL OBJECTIVES, AND/OR INSTITUTIONAL LEARNING OUTCOMES**

A. Identify how your program addresses or helps to achieve the **District's Mission Statement**.

Cuesta's water sciences program fully supports the College's strategic plan and trustee's goals. The program promotes self-actualization, critical thinking and creative problem solving, equal opportunity and diversity

B. Identify how your program addresses or helps to achieve the **District's Institutional Goals and Objectives**, and/or operational planning initiatives.

Institutional Objective 2.4: Increase career pathways for local high school students.

2 S a n   L u i s   O b i s p o   C o u n t y   C o m m u n i t y   C o l l e g e   D i s t r i c t
I n s t r u c t i o n a l   C o m p r e h e n s i v e   P r o g r a m   P l a n n i n g   &   R e v i e w
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Institutional Goal 3: Partnerships Develop and sustain collaborative projects and partnerships with the community's educational institutions, civic organizations, businesses, and industries.

Institutional Objective 3.2: Increase the number of partnerships with local businesses in order to expand student work-based and experiential-based learning opportunities.

Measure 1: Count of Partnerships with local businesses and organizations

- Partners with local water treatment and distribution agencies for internships
- Provide a steady stream of talent to our local agencies

C. Identify how your program helps students achieve **Institutional Learning Outcomes**.

1. Personal, Academic, and Professional Development

- Classes prepare students for California Certification Examinations for both Water Treatment and Water Distribution Operations T2 and D2

- Increased pay rates for program graduates – provides a career path for students who want a vocation apart for the university route

2. Critical Thinking and Communication

3. Scientific and Environmental Understanding

- Learn about water resources supply and conservation

- Learn about best available technologies to treat water

4. Social, Historical, and Global Knowledge and Engagement

- Learn about water policies, rights, and regulations

- Treatment Plant and Distribution tours

5. Technological and Informational Fluency

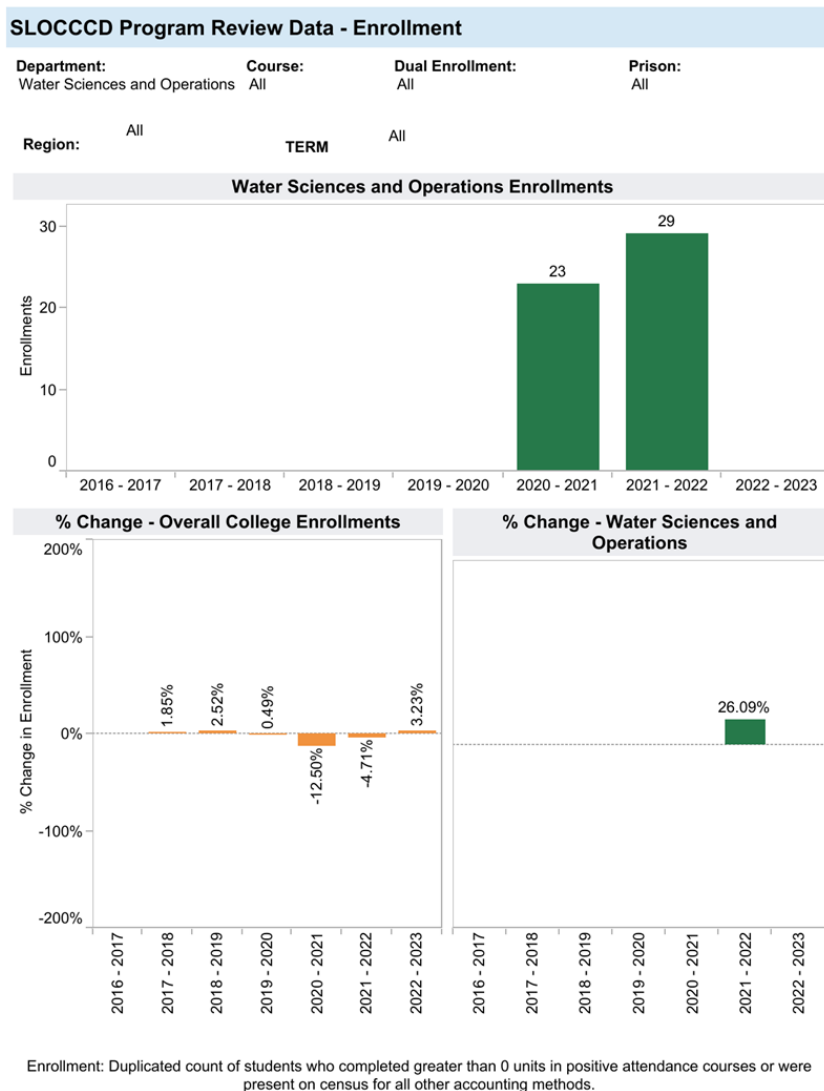- Use of Canvas for files and grading

III. **PROGRAM DATA ANALYSIS AND PROGRAM-SPECIFIC MEASUREMENTS**
(Where applicable the success metrics are aligned with the Student Success Metrics/SCFF).

The data components are hyperlinked below.

A. **General Enrollment (Insert Aggregated Data Chart)**
Insert the data chart and explain observed differences between the program and the college.
Primarily due to the COVID 19 pandemic, the enrollment within the department suffered significantly. Most of the clientele within the CTE areas did not sign up for classes as robustly as they have in the past, primarily due to the lack of the "hands-on" learning. While the data from 2021 shows a decrease, we are seeing marked increase enrollment in 2022. We expect our enrollment will be equivalent to start ramping up.

SLOCCCD Program Review Data - Enrollment

Department:	Course:	Dual Enrollment:	Prison:
Water Sciences and Operations	All	All	All

Region:	All	TERM	All

Water Sciences and Operations Enrollments

Term	Enrollments
2020 - 2021	23
2021 - 2022	29

% Change - Overall College Enrollments

Term	% Change
2017 - 2018	1.85%
2018 - 2019	2.52%
2019 - 2020	0.49%
2020 - 2021	-12.50%
2021 - 2022	-4.71%
2022 - 2023	3.23%

% Change - Water Sciences and Operations

Term	% Change
2021 - 2022	26.09%

Enrollment: Duplicated count of students who completed greater than 0 units in positive attendance courses or were present on census for all other accounting methods.
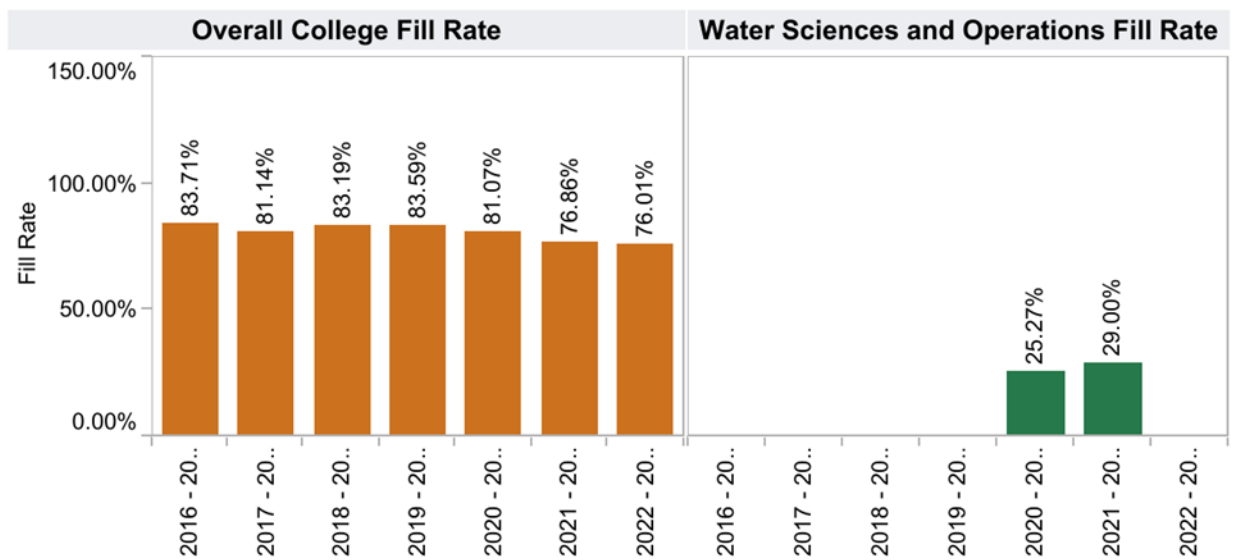
B. **General Student Demand (Fill Rate) (Insert Aggregated Data Chart)**
Insert the data chart and explain observed differences between the program and the college.

These classes were slated to have a based class size of 48 students. Due to the workshops conducted within the lectures, these classes function more like a "lab" setting. The ideal class size should be set on 20-24.

SLOCCCD Program Review Data - Student Demand (Fill Rate)

Department:	Course:	Dual Enrollment:	Prison
Water Sciences and Operations	All	All	All

Overall College Fill Rate

Year	Fill Rate
2016 - 20..	83.71%
2017 - 20..	81.14%
2018 - 20..	83.19%
2019 - 20..	83.59%
2020 - 20..	81.07%
2021 - 20..	76.86%
2022 - 20..	76.01%

Water Sciences and Operations Fill Rate

Year	Fill Rate
2020 - 20..	25.27%
2021 - 20..	29.00%

Fill Rate: The ratio of enrollments to class limits. Cross listed class limits are adjusted appropriately. Also, courses with zero class limits are excluded from this measure.

C. **General Efficiency (FTES/FTEF) (Insert Aggregated Data Chart)**

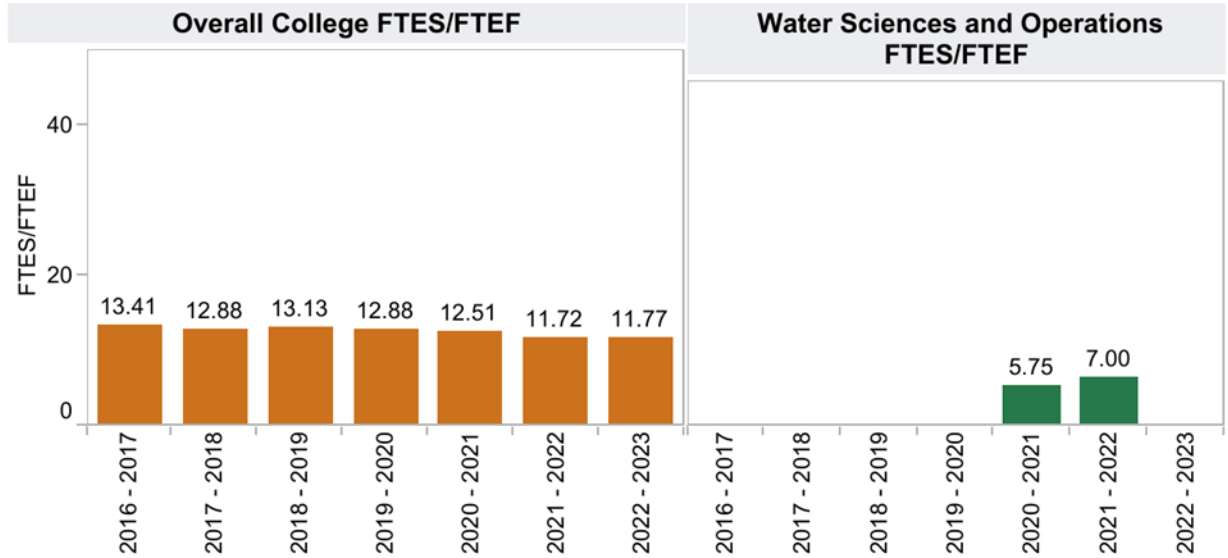Insert the data chart and explain observed differences between the program and the college.

SLOCCCD Program Review Data - Efficiency (FTES/FTEF)

Department:	Course:	Dual Enrollment:	Prison:
Water Sciences and Operations	All	All	All

Overall College FTES/FTEF

2016 - 2017	2017 - 2018	2018 - 2019	2019 - 2020	2020 - 2021	2021 - 2022	2022 - 2023
13.41	12.88	13.13	12.88	12.51	11.72	11.77

Water Sciences and Operations FTES/FTEF

2016 - 2017	2017 - 2018	2018 - 2019	2019 - 2020	2020 - 2021	2021 - 2022	2022 - 2023
				5.75	7.00	

FTES/FTEF: The ratio of total FTES to Full-Time Equivalent Faculty
(SXD4 Total-Hours/17.5)/XE03 FACULTY-ASSIGNMENT-FTE)

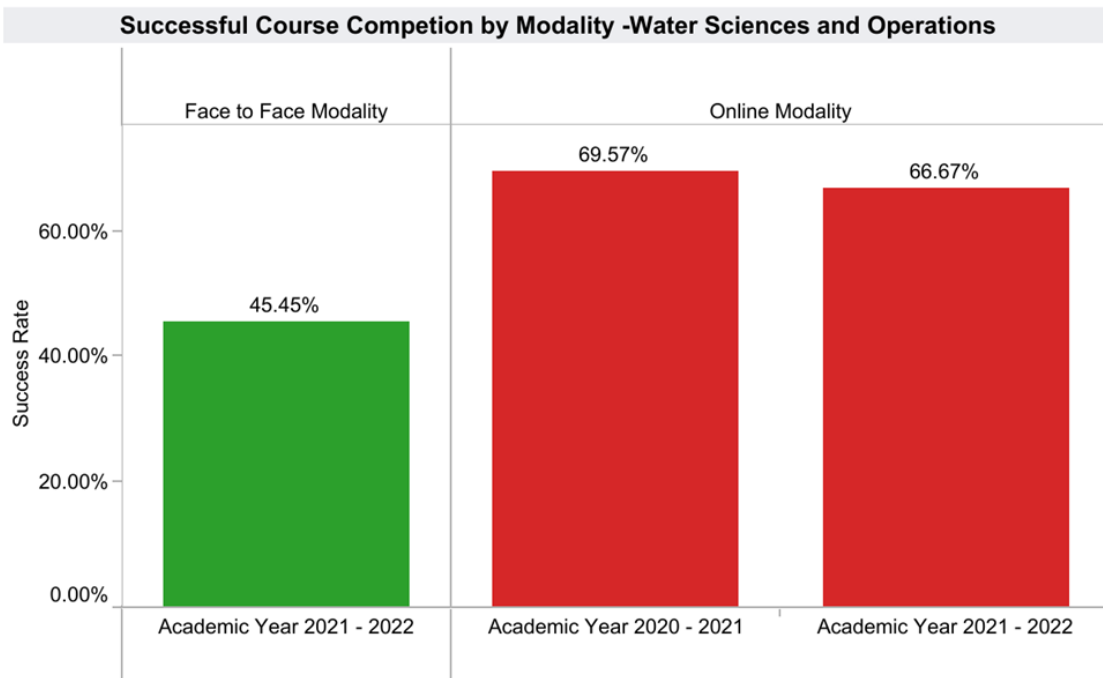D. **Student Success—Course Completion by Modality (Insert Data Chart)**

Considering that our program is designed around "face-to-face" modalities, one will see that our success rate in the online mode did not vary significantly from the face-to-face mode. Once the pandemic is concluded, essentially all of our courses will revert back to face-to-face. Strictly on-line modality is not as effective as in person instruction. Perhaps a hybrid modality can be considered for future courses.

SLOCCCD Program Review Data: Successful Course Completion

Select Department:
Water Sciences and Operations

Course:
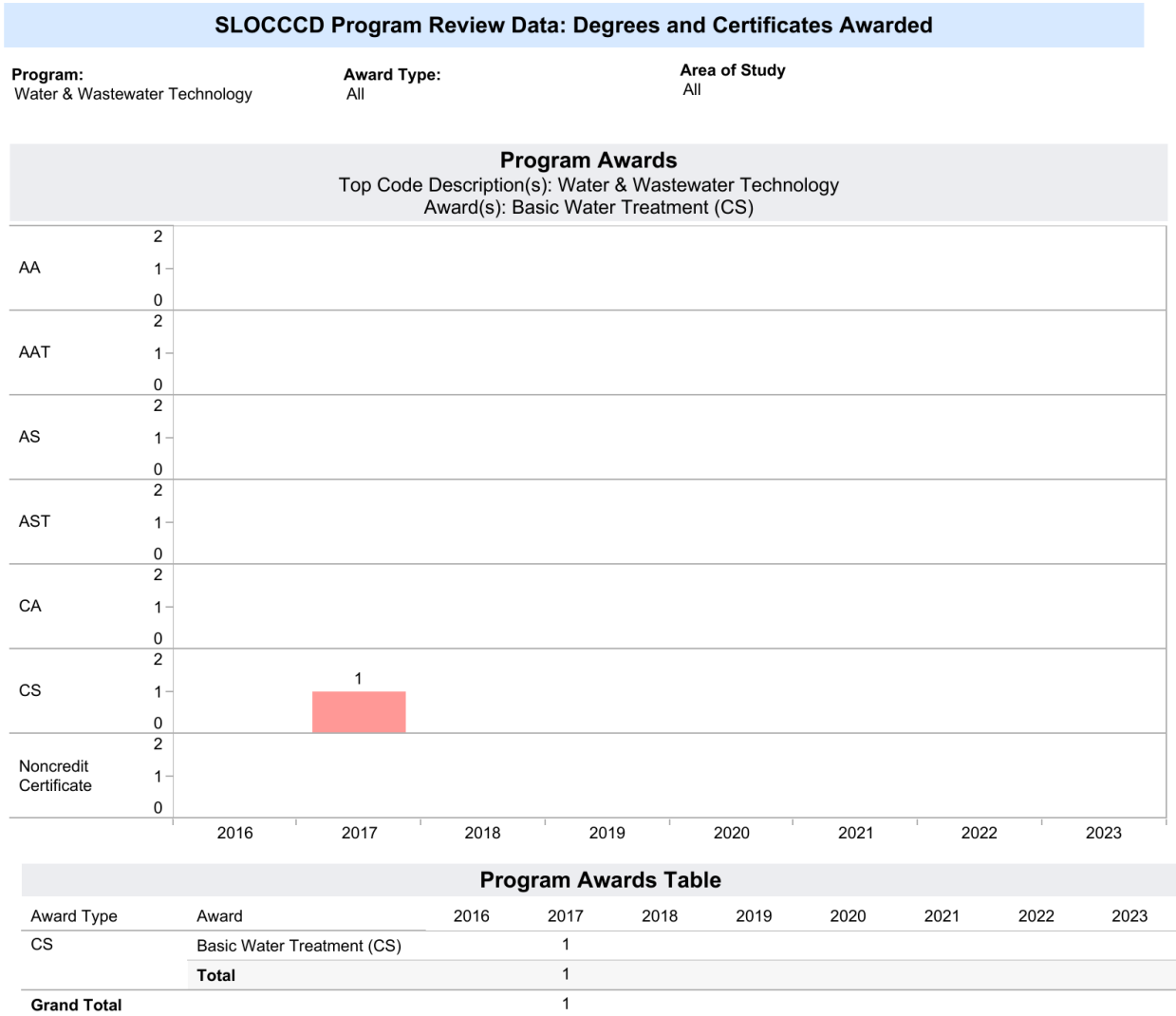All

Legend:
🟩 Face to Face Modality
🟥 Online Modality

Successful Course Competion by Modality -Water Sciences and Operations

	Face to Face Modality	Online Modality	
	45.45%	69.57%	66.67%
	Academic Year 2021 - 2022	Academic Year 2020 - 2021	Academic Year 2021 - 2022

(Y-axis: Success Rate — 0.00%, 20.00%, 40.00%, 60.00%)

Successful Course Competion by Modality Table - Water Sciences and Operations

		Academic Year 2020 - 2021	Academic Year 2021 - 2022
Face to Face Modality	Department Success Rate		45.45%
	Total Department Enrollments		11.00
Online Modality	Department Success Rate	69.57%	66.67%
	Total Department Enrollments	23.00	18.00

E. **Degrees and Certificates Awarded (Insert Data Chart)**

The Water Courses under the CTECH and CTCH prefixes used to offer certificates of completion for both Water Treatment and Water Distribution. It was determined that these certificates did not offer any additional value to the student nor the department. Eligibility to take and pass the State Certification exams were sufficient success measures and goals

SLOCCCD Program Review Data: Degrees and Certificates Awarded

Program:	Award Type:	Area of Study
Water & Wastewater Technology	All	All

Program Awards
Top Code Description(s): Water & Wastewater Technology
Award(s): Basic Water Treatment (CS)

Program Awards Table

Award Type	Award	2016	2017	2018	2019	2020	2021	2022	2023
CS	Basic Water Treatment (CS)		1						
	Total		1						
Grand Total			1						

Program Awards: The number of degress and certificates awarded by program type

F. **General Student Success – Course Completion (Insert Aggregated Data Chart)**
Insert the data chart and explain observed differences between the program and **Institutional Standards of Achievement**. If your program did not meet the Institutional Set Standard, please describe how you implement activities to meet the Institutional Set Standard.

This chart is fairly consistent with course completions over the last decade or more. The water science and operations courses have routinely exceeded expectations when it comes to successful course completions. We do not anticipate any changes from the current norm

SLOCCCD Program Review Data: Successful Course Completion

Select Department:
Water Sciences and Operations

COURSE
All

TERM
All

Measure Names
🟩 Department Success Rate
🟧 Overall College Success Rate

Successful Course Completion - Water Sciences and Operations

	Academic Year 2020 - 2021	Academic Year 2021 - 2022
Department Success (line)	69.57%	58.62%
Overall College (bar)	74.57%	74.69%

Success Rate (y-axis: 0.00% to 100.00%)
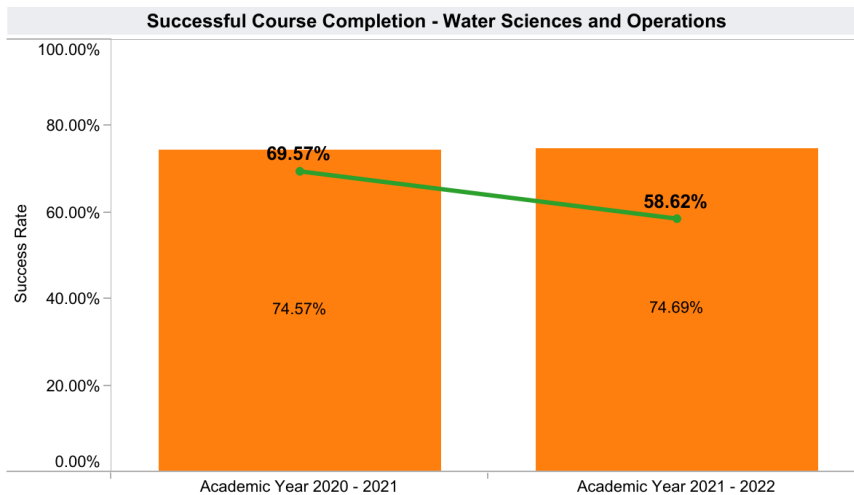
Water Sciences and Operations Success Rate Table

	Academic Year 2020 - 2021	Academic Year 2021 - 2022
Department Success..	69.57%	58.62%
Total Enrollments	23	29

Success: The Percentage of student enrollments resulting in a final grade of "C" or better

G. Review the **Disaggregated Student Success** charts; include any charts that you will reference. Describe any departmental or pedagogical outcomes that have occurred as a result of programmatic discussion regarding the data presented.

This is an area of challenge for our department. However, improvement is always a possibility. Information of this program can be communicated to various diversity outreach efforts that exist within the College.

Note: Successful Course Completion is the ratio of enrollments resulting in a final grade of A, A-, B+, B, B-, C+, C, CR or P to all valid grades.

10 S a n   L u i s   O b i s p o   C o u n t y   C o m m u n i t y   C o l l e g e   D i s t r i c t
I n s t r u c t i o n a l   C o m p r e h e n s i v e   P r o g r a m   P l a n n i n g   &   R e v i e w
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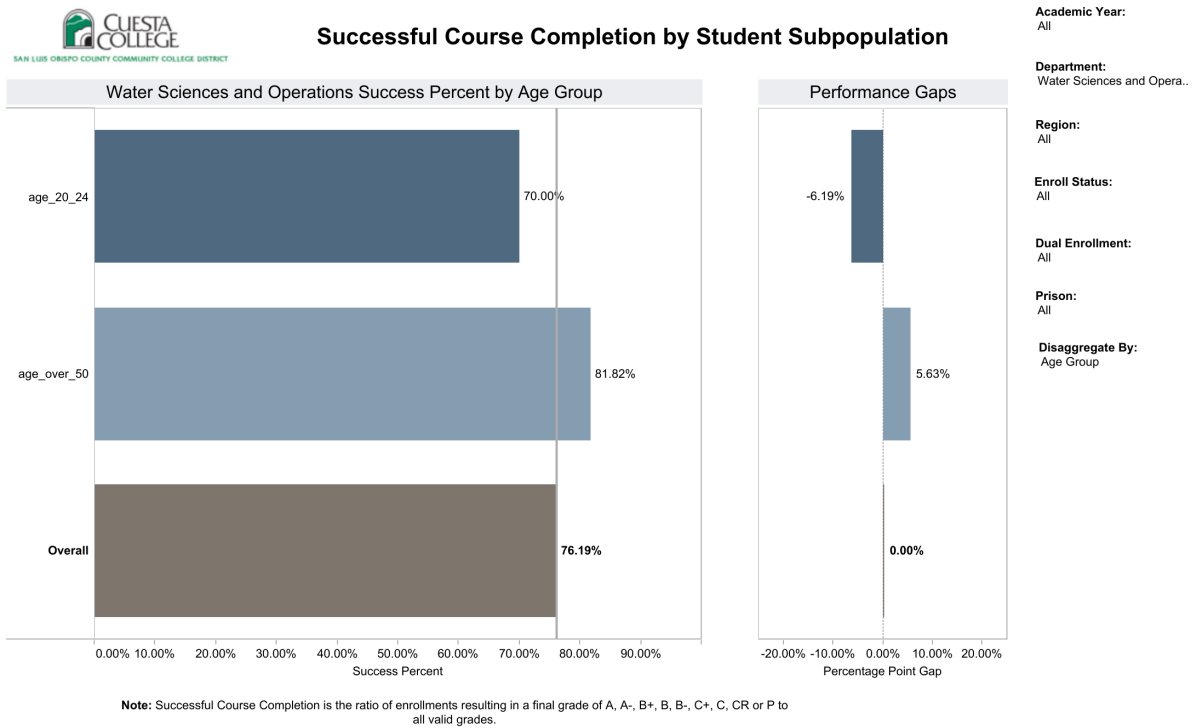
IV. PROGRAMS AND CURRICULUM REVIEW

A. Programs Review

Review the CurrIQunet "Program of Study" outline for each program and indicating yes/no for each program/certificate.

Course (Prefix / Number)	Currently active	New course since last CPPR	Major modification since last CPPR	Minor modification since last CPPR	Deactivated since last CPPR Notified impacted program(s)*
WATR 270	Yes	N/A	N/A	N/A	N/A
WATR 272	Yes	N/A	N/A	N/A	N/A

V. PROGRAM OUTCOMES, ASSESSMENT AND IMPROVEMENTS

A. Attach or insert the assessment calendar for your program for the next program review cycle.

Not available

B. Have you completed all course assessments in eLumen? If no, explain why you were unable to do so during this program review cycle and what plan(s) exist for completing this in the next program review cycle.

This is yet to be developed

C. Include the most recent "PLO Summary Map by Course" from eLumen which shows the Course-level SLOs mapped to the Program-level SLOs.

This is yet to be developed

D. Include the most recent "ILO Summary Map by Course" from eLumen that shows the Course-level SLOs mapped to the Institutional Learning Outcomes.

This is yet to be developed

E. Highlight changes made at the course or program level that have resulted from SLO assessment. Please include the evidence of dialog that prompted these changes.

This is yet to be developed

F. Identify and describe any budget or funding requests that are related to student learning outcome assessment results. If applicable, be sure to include requests in the **Resource Plan Worksheet** and review the **Resource Allocation Rubric**.

No budget requests are planned at this time

VI. PROGRAM DEVELOPMENT

Indicate how the program supports efforts to achieve any of the following:

A. Institutional Goals and Objectives

- The Water Treatment Operation Course WATR 270 course is designed to prepare the student to be a Water Treatment Plant Operator, T1 or T2. Includes the study of plant operation, water sources and treatment, reservoir management, coagulation and flocculation, sedimentation, filtration, disinfection, taste and odor control, and corrosion control. Successful completion of this course will qualify and prepare the student to take the both the T2 and D2 California Water Certification Exams and upon passing the exams will provide the student a T2 Water Treatment Operator Certification or a D2 Water Distribution Operator Certification.

- The Water Distribution Systems course WATR 272 is designed to prepare the student to be an operator of water storage and distribution systems, and pumping concepts. Provides an understanding of the basic operational and maintenance concepts of water distribution systems. Develops the ability to analyze and solve problems such as tastes and odors, corrosion damage, and system failures when they occur. Successful completion of this course will qualify and prepare the student to take the D2 California Water Distribution Certification Exam and upon passing the exam will provide the student a D2 Water Distribution Operator Certification.

B. Institutional Learning Outcomes

WATR 270 – Basic Water Treatment Operation

a. Demonstrate a working knowledge of a Water Treatment Plant
b. Identify water sources and methods of water treatment
c. Describe the various methods of reservoir management.
d. Calculate geometric volumes
e. Demonstrate weight and volume relationships
f. Calculate velocity and flow rates for coagulation and flocculation
g. Understand and identify pump curves

  h. Describe filtration methods, disinfection methods and control of sedimentation

  i. Describe methods of corrosion control

  j. Describe methods of taste and odor control

  k. Completion of the course with a C or better will give the student eligibility to take both the Grade D2 California Water Distribution Certification Exam and the Grade T2 California Water Treatment Certification Exam

 WATR 272 – Water Distribution Systems Operation

  a. Demonstrate a working knowledge of various water distribution systems

  b. Identify the characteristics of distribution system facilities

  c. List and explain the procedures for operating and maintaining clear wells and storage tanks

  d. Describe how to operate and maintain distribution systems

  e. Demonstrate how to maintain water quality in distribution systems

  f. Describe the techniques for recognizing hazards and developing safe procedures and safety programs

  g. Describe the methods of disinfection of new and repaired facilities as well as water delivered to consumers

  h. Completion of the course with a C or better will give the student eligibility to take Grade D2 California Department of Public Health Water Distribution Certification Exam

  i. Alignment of topics and scopes, methods of evaluation, and assignments with objectives – Workshops, Homework, Exams

B. Program outcomes

 Indicate any anticipated changes in the following areas:

1. Curriculum and scheduling

 The curriculum is patterned according the the water courses curriculum from the Office of Water Programs (OWP) from Sacramento State University.
https://www.owp.csus.edu/courses/catalog.php
Our Water Sciences and Operations courses use the textbooks that are written by OWP. These textbooks are typically revised every 3 to 5 years. As textbooks are updated, some new material may be introduced and are incorporated into the curriculum.

2. Support services to promote success, persistence and retention

 Utilizing career counselors and reaching out to high school counselors to communicate the following:

13 S a n   L u i s   O b i s p o   C o u n t y   C o m m u n i t y   C o l l e g e   D i s t r i c t
I n s t r u c t i o n a l   C o m p r e h e n s i v e   P r o g r a m   P l a n n i n g   &   R e v i e w
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- o The water science and operations courses offer a career vocation in a field that is crucial to our society's water infrastructure system.

- o Successful enrollment numbers can be bolstered by reaching out to prospective high school students who are focusing on vocational-technical fields.

- o Prospective students also come from workers in the laborer sectors who are looking for other opportunities to use their technical skills to develop an alternative career path

- o These courses also don't fall into a standard lecture or lab category. It is recommended that class size be no larger than 20

  - This class size is the limit for conducting facility tours

  - Problem solving workshops in class are also more effective with a lab sized class

3. Facilities needs

Classrooms need to have technology that can accommodate PowerPoint presentations.

4. Staffing needs/projections

The current part-time faculty is appropriate for these courses.

Lastly, address any changes in strategy in response to the predicted budget and FTES target for the next program review cycle.

There is a need to outreach to high school students. Perhaps a career counselor liaison can assist with this task.

VII.   END NOTES

VIII.   After completing and submitting this document, please complete the Overall Program Strength and Ongoing Viability Assessment with your Dean before May 3, 2024.

SIGNATURE PAGE

Faculty, Director(s), Manager(s), and/or Staff Associated with the Program

Instructional Programs: All full-time faculty in the program must sign this form. If needed, provide an extra signature line for each additional full-time faculty member in the program. If there is no full-time faculty associated with the program, then the part-time faculty in the program should sign. If applicable, please indicate lead faculty member for program after printing his/her name.

Instructional Programs: All full-time director(s), managers, faculty and/or classified staff in the program must sign this form. (More signature lines may be added as needed.)

David Fernandez   Apr 5, 2024
_____   _____   _____
Division Chair/Director Name   Signature   Date

Raymond Dienzo   Apr 4, 2024
_____   _____   _____
Name   Raymond Dienzo (Apr 4, 2024 12:29 PDT)   Signature   Date

_____   _____   _____
Name   Signature   Date

_____   _____   _____
Name   Signature   Date

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Name   Signature   Date

_____   _____   _____
Name   Signature   Date

SUPPLEMENTAL DOCUMENTS
FACULTY HIRING PRIORITIZATION INFORMATION (If Applicable)

If your program requested a faculty position for consideration, please attach or embed the following worksheets that were presented to the College Council. The guidelines for faculty prioritization can be found here: **Faculty Prioritization Process Handbook**

APPLICABLE SIGNATURES:

Vice President/Dean	**Date**

Division Chair/Director/Designee	**Date**

Other (when applicable)	**Date**

The above-signed individuals have read and discussed this review. The Director/Coordinator, Faculty, and staff in the program involved in the preparation of the CPPR acknowledge the receipt of a copy of the Vice President/ Dean's narrative analysis. The signatures do not necessarily signify agreement.

16 S a n   L u i s   O b i s p o   C o u n t y   C o m m u n i t y   C o l l e g e   D i s t r i c t
I n s t r u c t i o n a l   C o m p r e h e n s i v e   P r o g r a m   P l a n n i n g   &   R e v i e w
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WATR-CPPR-2024

Final Audit Report   2024-04-05

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By:	Emily Hinkle (emily_hinkle@cuesta.edu)
Status:	Signed
Transaction ID:	CBJCHBCAABAArOdpcSBSWzbdyGkFViRXfQ-3hRgzJQdd

"WATR-CPPR-2024" History

📄 Document created by Emily Hinkle (emily_hinkle@cuesta.edu)
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