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First Name: Joseph
Last Name: Young
Email: Joseph.Young@gcccd.edu
Custom Data: Water/Wastewater Technology
IP Address: 72.199.210.15

Page 1: I. Program Overview and Update

Q1 Department(s) Reviewed:

Center for Water Studies (formerly Water & Wastewater Technology)

Q2 Lead Author and Collaborators:

Joseph D. Young

Q3 Dean:

Larry McLemore, Dean of CTE

Instructional Program Review Annual Update

Q4 Program Update (Required): Please summarize the changes, additions, and achievements that have occurred in your program since the last program review. To access last year's program review, visit the IPRPC Intranet Page, accessible [here](#).

Since the Water & Wastewater Technology Program was awarded a 3 year, \$890,000 grant in October 2016 from the National Science Foundation (NSF), we have been focused on transitioning our existing program into the "Center for Water Studies". The transition involved the following goals:

1. Construction of an above-ground demonstration water distribution system to be utilized for hands-on learning activities.
2. Redevelopment of the "L" building for the exclusive use of our program, including two large classrooms, two labs, two office spaces, and storage space.
3. Modifying the existing curriculum to include utilization of the above-ground water distribution system for hands-on skill building activities.
4. Developing new coursework for hands-on training utilizing the above-ground water distribution system.
5. Develop a comprehensive outreach and recruitment program that targets women, under-represented minorities, and transitioning military personnel and veterans looking for a second career.
6. Provide K-12 students and teachers with learning opportunities in water and wastewater technology to promote STEM proficiency.
7. Adding an additional full-time wastewater instructor to facilitate management of the expanded "Center for Water Studies".

Over the last 12 months, many of our goals have been successfully completed, as follows:

1. The demonstration water distribution system has been completed, now named the Field Operations Skills Yard (FOSY).
2. The "L" building remodel has been completed, and classes were taught in the new facility beginning in Fall of 2018.
3. The curriculum was modified to reflect the new CWS (Center for Water Studies) nomenclature and to include the FOSY as a method of instruction. Certificates of Specialization were added to the program offerings. Some courses were renumbered to facilitate student understanding of program sequence. The curriculum changes were approved in November 2018.
4. New courses were developed, submitted, and approved for CWS 100 (career pathways), CWS 107 (water & wastewater industry safety), and CWS 210 (advanced water quality analysis).
5. The transition of the existing Water & Wastewater Technology Program into the new Center for Water Studies is substantially completed.

Page 2: IIB. Student and Program Learning Outcomes

Q5 Do you have an assessment plan on file with SLOAC? If you have not already done so, you can submit your program's assessment plan to SLO Coordinator, Tania Jabour, at tania.jabour@gcccd.edu.

Yes

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Q6 Please provide an analysis of your student learning outcomes (SLO) findings and what changes, if any, were made as a result.

All course SLO's were assessed in 2016-17, with 12 courses assessed in Fall 2016 and 8 courses assessed in Spring 2017. Of the 103 SLO's assessed across all the courses in the WWTR program, the aggregate success rate was 89%. 92 SLO's were rated successful (>70%) with an aggregate success rate of 86%. 11 of the SLO's needed improvement (<70%) with an aggregate success rate of 61%.

The WWTR instructors discussed the SLO's that needed improvement at the Department meetings in the Spring of 2018. The SLO's that needed improvement all related to mathematical calculations regarding water & wastewater treatment, pipe flow, flow velocity, pumping calculations, time and volume transfer relationships of moving water, and similar mathematical calculations. It has always been understood by the program instructors that the math component is generally the most difficult for the student to comprehend, and yet is critical to the students success in passing State mandated certifications necessary for employment. The following recommendations were agreed upon by the program instructors:

1. Adjust lesson plans to focus more aggressively on the math components of the class.
2. Review homework assignments to assure that math is sufficiently included to give students more practice working problems.
3. Include frequent short quizzes to provide students more ongoing feedback on their math skills.
4. Develop and post additional practice math problems for those students who desire some extra work developing their math skills.
5. Promote the use of the tutoring center to students experiencing difficulty in performing mathematical computations.

Q7 Review your PLOs. Are the listed PLOs an accurate reflection of the program's current learning objectives? **Yes**

Q8 Are the PLOs mapped onto the course SLOs? **Yes**

Q9 Discuss your assessment plan for the PLOs.

All PLO's and SLO's will be assessed in the 2019-20 fiscal year

Page 3: IIB. Student Achievement

Q10 How has the program's success rate changed over the past year?

Over the past year, the Center for Water Studies success rate has improved between 4% to 5%. Spring data indicates an increase from 82% to 86% over the last year. Fall data indicates an increase from 79% to 84%.

Q11 The College has set a 2024 goal of reaching a 77% course success rate (students passing with a grade of A, B, C, or P out of those enrolled at census) for the College as a whole. Consider how your will program help the College reach its long-term goal of increasing the course success rate to 77%. This is intended to provide a goal for improvement only; programs will not be penalized for not meeting the goal. What is your program's one-year goal for success rate across all courses in the program?

Our goal is to maintain a minimum of 80% success rate across the entire program.

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Q12 Which specific groups (by gender and ethnicity) have success rates lower than that of the program overall?

By gender or ethnicity, all groups had success rates approximately equal to or better than the program average with the exception of: African-American Non-Hispanic with an average of 71% over the last five year period.

Q13 What program (or institutional) factors may be contributing to these lower rates of success for these groups of students?

I don't precisely know the answer to this question. It is my belief that there are no program or institutional factors that are contributing to the lower success rate for this particular ethnic group. This metric may be nothing more than a statistical anomaly. I will be monitoring this particular statistic in the future to see whether it continues to be below the average.

Q14 What specific steps will the program take to address these equity gaps in the 2019/20 academic year?

Because I don't fully understand the cause of this statistical anomaly, I'm not certain what steps should be taken to address this gap. All of the instructors in the program make their best effort to deliver the course material within their respective disciplines to all students who are present in their classes regardless of their particular ethnic background.

Q15 How do these activities align with the goals set forth in your last comprehensive program review?

N/A

Q16 OPTIONAL: If you would like to attach any charts or additional documentation (aside from the program review report prepared by the IESE Office), please upload it using the button below. You can upload PDF, Word, and image files.

Respondent skipped this question

Page 4: Distance Education

Q17 Does your program offer any courses via distance education (online)?

No

Page 5: Distance Education Course Success

Q18 Are there differences in success rates for distance education (online) versus in-person sections?

Respondent skipped this question

Q19 If there are differences in success rates for distance education (online) versus in person sections, what will the program do to address these disparities?

Respondent skipped this question

Page 6: IV. Previous Goals: Update (If Applicable)

Instructional Program Review Annual Update

Q20 Would you like to provide an update for your previous program review goal(s)? **Yes**

Page 7: Previous Goal 1

Q21 Previous Goal 1:

Construction of an above-ground demonstration water distribution system to be utilized for hands-on learning activities.

Q22 Link to College Strategic Goal(s): **Guided Student Pathways** , **Student Validation and Engagement** , **Organizational Health**

Q23 Goal Status **Completed**

Q24 How was the goal evaluated? If the goal is "in progress," how will it be evaluated?

Construction was completed in January of 2018.

Q25 Please provide the rationale for this goal: **Respondent skipped this question**

Q26 Please provide the goal action steps for the year (previously "Activities"): **Respondent skipped this question**

Q27 Do you have another goal to update? **Yes**

Page 8: Previous Goal 2

Q28 Previous Goal 2:

Redevelopment of the "L" building for the exclusive use of our program, including two large classrooms, two labs, two office spaces, and storage space.

Q29 Link to College Strategic Goal(s): **Guided Student Pathways** , **Student Validation and Engagement** , **Organizational Health**

Instructional Program Review Annual Update

Q30 Goal Status

Completed

Q31 How was the goal evaluated? If the goal is "in progress," how will it be evaluated?

The remodeling of the "L" building was completed in August of 2018.

Q32 Please provide the rationale for this goal:

Respondent skipped this question

Q33 Please provide the goal action steps for the year (previously "Activities"):

Respondent skipped this question

Q34 Do you have another goal to update?

Yes

Page 9: Previous Goal 3

Q35 Previous Goal 3:

Modifying existing curriculum to include utilization of the above-ground water distribution system to facilitate hands-on learning for students, and developing stackable Certificates of Specialization in 4 majors (Distribution Systems Operation, Water Treatment Operations, Wastewater Treatment Operations, and Wastewater Collections Operations).

Q36 Link to College Strategic Goal(s):

Guided Student Pathways ,
Student Validation and Engagement ,
Organizational Health

Q37 Goal Status

Completed

Q38 How was the goal evaluated? If the goal is "in progress," how will it be evaluated?

All of the existing curriculum changes and the stackable Certificates of Specialization were approved by the Curriculum Committee in May of 2018. The Governing Board and the State Chancellors office approved the changes in November of 2018.

Q39 Please provide the rationale for this goal:

Respondent skipped this question

Q40 Please provide the goal action steps for the year (previously "Activities"):

Respondent skipped this question

Q41 Do you have another goal to update?

Yes

Page 10: Previous Goal 4

Q42 Previous Goal 4:

Developing new coursework for hands-on training utilizing the above-ground water distribution system.

Q43 Link to College Strategic Goal(s):

Guided Student Pathways ,

Student Validation and Engagement ,

Organizational Health

Q44 Goal Status

In Progress

Q45 How was the goal evaluated? If the goal is "in progress," how will it be evaluated?

Three new courses were developed, submitted, and approved for CWS 100 (career pathways), CWS 107 (water & wastewater industry safety), and CWS 210 (advanced water quality analysis). These 3 new courses were approved by the Curriculum Committee in May 2018 and approved by the Governing Board and the State Chancellors office in November 2018.

Two additional new courses have been developed for CWS 207 (Hands-on skill building lab) and CWS 206 (Advanced Electrical and Instrumentation Processes) and will be submitted to the Curriculum Committee in the February 2019. If approved by the Curriculum Committee, these 2 new courses will be submitted to the Governing Board and the State Chancellors office later in the Spring 2019 semester.

Q46 Please provide the rationale for this goal:

Our Industry Advisory committee has long been recommending that our program endeavor to develop hands-on mechanical skills in our students to improve their ability to compete in the job application and interview process and be better positioned to gain employment in the industry.

Q47 Please provide the goal action steps for the year (previously "Activities"):

Complete development of the new courses and submit to the Curriculum Committee for approval.

Page 11: V. New Goals (If Applicable)

Q48 Would you like to propose any new goal(s)?

Yes

Page 12: New Goal 1

Instructional Program Review Annual Update

Q49 New Goal 1:

Develop a comprehensive outreach and recruitment program that targets women, under-represented minorities, and transitioning military personnel and veterans looking for a second career.

Q50 Link to College Strategic Goal(s):

Guided Student Pathways ,

Student Validation and Engagement ,

Organizational Health

Q51 Please provide the rationale for this goal:

The Center for Water Studies needs to develop a proactive outreach and recruitment program that targets women, under-represented minorities, and transitioning military personnel and veterans to improve program enrollment figures in these demographic areas.

Q52 Please provide the goal action steps for the year (previously "Activities"):

- a. Produce recruitment videos targeted specifically at women, under-represented minorities, and transitioning military personnel.
 - b. Develop and host a Third Annual "Women in Water" conference to encourage women to consider technician positions in the water and wastewater industry.
 - c. Develop a mentoring program for women and under-represented professionals in the water and wastewater industry.
 - d. Partner with the Institute for Women in Trades, Technology, and Science, an NSF grantee experienced in recruiting and retaining female students in nontraditional programs.
 - e. Implement recruitment activities targeted to transitioning military personnel with specific STEM Military Occupational Specifications (MOS).
 - f. Conduct at least two periodic recruitment fairs with transitioning military personnel.
 - g. Coordinate with the VA and Zero8Hundred to conduct outreach during the military's transition process for Navy and Coast Guard members (referred to as Goals, Plans and Success [GPS]).
-

Q53 How will the goal be evaluated?

Comparing past and future enrollment figures and demographics will determine if the goal action steps have been successful.

Q54 Do you have another new goal?

Yes

Page 13: New Goal 2

Q55 New Goal 2:

Provide K-12 students and teachers with learning opportunities in water and wastewater technology to promote STEM proficiency.

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Q56 Link to College Strategic Goal(s):

Guided Student Pathways ,

Student Validation and Engagement ,

Organizational Health

Q57 Please provide the rationale for this goal:

High school graduates are a very small percentage of the Center for Water Studies enrollment demographic. Promoting careers in the water & wastewater industry to graduating high school students with STEM proficiency will improve future enrollments for this demographic.

Q58 Please provide the goal action steps for the year (previously "Activities"):

- a. Create water studies modules designed for K-12 students that provide contextualized learning in STEM and promote environmental awareness and conservation.
 - b. Provide professional development for K-12 teachers to deliver the teaching modules through a summer seminar series at Cuyamaca College.
 - c. Coordinate water and wastewater industry facilities tours for K-12 STEM teachers.
-

Q59 How will the goal be evaluated?

Comparing past and future enrollments for this demographic will determine if the goal action steps have been successful.

Q60 Do you have another new goal?

Yes

Page 14: New Goal 3

Q61 New Goal 3:

Develop a Bachelor Degree Program with emphasis in Water & Wastewater Utility Management jointly with a local college.

Q62 Link to College Strategic Goal(s):

Guided Student Pathways ,

Student Validation and Engagement ,

Organizational Health

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Q63 Please provide the rationale for this goal:

Water & wastewater utility employees typically have only a high school education, and even though they have many years in the field and a lot of technical expertise, they are unable to rise higher than a supervisor level. Management level positions require a Bachelors Degree. A 4 year Bachelor Degree program with water utility management emphasis will bridge the gap for many water and wastewater utility employees who want to compete for management positions at their utility.

Q64 Please provide the goal action steps for the year (previously "Activities"):

We are currently in discussions with three local colleges to explore opportunities to jointly develop a Bachelors Degree program in Water Utility Management. These discussions will be ongoing and will continue.

Q65 How will the goal be evaluated?

The goal will be evaluated by how successful we are in creating this program.

Q66 Do you have another new goal?

Yes

Page 15: New Goal 4

Q67 New Goal 4:

Hire an additional full-time wastewater instructor to facilitate management of the expanded "Center for Water Studies" Program.

Q68 Link to College Strategic Goal(s):

Guided Student Pathways ,

Student Validation and Engagement ,

Organizational Health

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Q69 Please provide the rationale for this goal:

The most important element in ensuring the success of the Center for Water Studies program is the addition of a second full-time instructor. The WWTR program is currently undergoing a complete transformation into the Center for Water Studies, expanding course offerings with seven new courses. In addition, the program has added the Field Operations Skills Yard and will be integrating "learning by doing" activities into the majority of the curriculum. In order to adequately manage this additional workload it is essential to add a full-time instructor with wastewater career expertise. The new technologies employed in the water industry center around wastewater technologies (San Diego City's Pure Water program and expanded Wastewater Reclamation program, for example), and it is essential to the program to staff a qualified wastewater professional to adequately support the program's expansion efforts. A recent Government Accountability Office Bureau of Labor Standards report projects that 8.2% of existing water and wastewater industry jobs will need to be replaced annually between 2016 and 2026. That translates into 400 job vacancies annually in San Diego County, which employs a total of about 5,000 in the water & wastewater industry. The industry relies heavily on graduates from our program to fill entry level positions. With our program's emphasis on recruiting under our current NSF grant efforts, and the high rate of industry turnover due to retirements, it is essential to hire a full-time wastewater instructor in order for the program to keep pace with the increased level of new students and job openings that are projected for the industry in the future.

Q70 Please provide the goal action steps for the year (previously "Activities"):

The goal for this year is to submit another Faculty Position Request form with this Annual Program Review to try and improve the priority level of our faculty request.

Q71 How will the goal be evaluated?

This goal will be evaluated by where our request lands on the Faculty Request priority list and whether our faculty request is ultimately approved.

Page 16: VI. Resources Needed to Fully Achieve Goal(s)

Q72 Is the program requesting resources this year to achieve this goal? **Yes**

Page 17: V. Faculty Resource Needs

Q73 Are you requesting one or more faculty positions to achieve this goal? **Yes**

Page 18: Faculty Position Request(s)

Q74 Please remember to complete the Faculty Position Request Form (accessible here, under Staffing Request Information) for this position that you are requesting and upload it using the button below. The Faculty Position Request Form (In Word) can be located here (under Staffing Request Information). Brief Description of the Position Requested:

Full-time faculty position with career emphasis in Wastewater Technology.

Instructional Program Review Annual Update

Q75 Faculty Position Request 1 - Related Program Goal(s):

Program Goal 4

Q76 Faculty Position Request Upload 1: Please upload the completed faculty request form for the above position using the button below. You can access the Word version of the Faculty Position Request Form here (under Staffing Request Information).

CWS Faculty Position Request Form-2018-19 FINAL.docx(21.4KB)

Q77 Faculty Position Request 2 (if applicable): Please remember to complete the Faculty Position Request Form (accessible here, under Staffing Request Information) for this position that you are requesting and upload it using the button below. The Faculty Position Request Form (In Word) can be located here (under Staffing Request Information). Brief Description of Position Requested:

Respondent skipped this question

Q78 Faculty Position Request 2 - Related Program Goal(s):

Respondent skipped this question

Q79 Faculty Position Request Upload 2: Please upload the completed faculty request form for the above position using the button below. You can access the Word version of the Faculty Position Request Form here.

Respondent skipped this question

Page 19: VI. Classified Staff Resource Needs

Q80 Are you requesting one or more classified positions to achieve this goal?

No

Page 20: Classified Staff Position Request(s)

Q81 Classified Staff Position Request 1: Please remember to complete the Classified Staff Position Request Form (accessible here, under Staffing Request Information) for this position you are requesting. Brief Description of Position Requested:

Respondent skipped this question

Q82 Classified Staff Position 1 Related Program Goal(s):

Respondent skipped this question

Instructional Program Review Annual Update

Q83 Classified Staff Position 1 Request Upload: Please upload a completed Classified Position Request Form for this request using the button below. You can access the Word version of the Classified Position Request Form here. **Respondent skipped this question**

Q84 ***OPTIONAL*** Please use the button below to upload the position classification description (obtained from HR). **Respondent skipped this question**

Q85 Classified Staff Position Request 2: Please remember to complete the Classified Staff Position Request Form (accessible here, under Staffing Request Information) for each position you are requesting. Brief Description of Position Requested: **Respondent skipped this question**

Q86 Classified Staff Position 2 Related Program Goal(s): **Respondent skipped this question**

Q87 Classified Staff Position Request 2 Upload: Please upload a completed Classified Position Request Form for this request using the button below. You can access the Word version of the Classified Position Request Form here (under Staffing Request Information). **Respondent skipped this question**

Q88 ***OPTIONAL*** Please use the button below to upload the position classification description (obtained from HR). **Respondent skipped this question**

Page 21: VII. Technology Resource Needs

Q89 Are you requesting technology resources to achieve this goal? **No**

Page 22: Technology Request(s)

Q90 Technology Request 1: Please remember to complete a Technology Request Form for each request you are submitting. You can access the online Technology Request Form here: Technology Request Form **Respondent skipped this question**

Q91 Technology Request 2: Please remember to complete a Technology Request Form for each request you are submitting. You can access the online Technology Request Form here: Technology Request Form **Respondent skipped this question**

Page 23: VIII. Perkins and Strong Workforce Resource Needs

Q92 Are you requesting Perkins and/or Strong Workforce resources to achieve this goal? **No**

Page 24: Perkins Request and Strong Workforce

Q93 Perkins Request and Strong Workforce 1: Please remember to complete the Perkins Request Form and submit it via the annual Perkins/Strong Workforce request process/cycle. **Respondent skipped this question**

Q94 Perkins Request and Strong Workforce 2: Please remember to complete the Perkins Request Form and submit it via the annual Perkins/Strong Workforce request process/cycle. **Respondent skipped this question**

Page 25: IX. Supplies/Equipment Resource Needs

Q95 Are you requesting supplies and/or equipment resources to achieve this goal? **No**

Page 26: Supplies/Equipment Request(s)

Q96 Supplies/Equipment Request 1: In the boxes below please provide information on your request. Supplies/Equipment requests will be considered on a one-time funding basis. **Respondent skipped this question**

Q97 Supplies/Equipment Documentation 1: Please upload any supplies/equipment quotes or additional documentation for this request. **Respondent skipped this question**

Q98 Supplies/Equipment Request 2: In the boxes below please provide information on your request. Supplies/Equipment requests will be considered on a one-time funding basis. **Respondent skipped this question**

Q99 Supplies/Equipment Documentation 2 : Please upload any supplies/equipment quotes or additional documentation for this request. **Respondent skipped this question**

Page 27: X. Facilities Resource Needs

Instructional Program Review Annual Update

Q100 Are you requesting facilities resources to achieve this goal? **No**

Page 28: Facilities Request

Q101 Facilities Request 1: Please provide the information below and remember to complete a Facilities Request Form accessible here: [Facilities Request Form](#) **Respondent skipped this question**

Q102 Facilities Request 2: Please provide the information below and remember to complete a Facilities Request Form, accessible here: [Facilities Request Form](#) **Respondent skipped this question**

Page 29: XI. Professional Development Resource Needs

Q103 Are you requesting professional development resources to achieve this goal? **No**

Page 30: Professional Development Request

Q104 Professional Development Request 1: Please provide the information identified below and follow the process for requesting professional development funds, outlined here. **Respondent skipped this question**

Q105 Professional Development Request 2: Please provide the information identified below and follow the process for requesting professional development funds, outlined here. **Respondent skipped this question**

Page 31: XII. Other Resource Needs

Q106 Are you requesting any other resources to achieve this goal? **No**

Page 32: Other Resource Requests

Q107 Other Resource Requests 1: Other resource requests will be considered on a one-time funding basis. Please fill in the information below. **Respondent skipped this question**

Q108 Other Resource Requests 2: Other resource requests will be considered on a one-time funding basis. Please fill in the information below. **Respondent skipped this question**

Q109 Are you ready to submit your program review? If you click "No," you will be redirected to the start of the program review module.

Respondent skipped this question
