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OVERVIEW OF PROGRAM REVIEW AND PLANNING FOR INSTRUCTIONAL PROGRAMS

Program Review and Planning is about evaluating and assessing programs and documenting plans for improving student success rates. Through review of and reflection on key program elements, Program Review and Planning identifies program strengths and strategies necessary to improve the academic discipline, program, and/or services to support student success.

The College also uses Program Review and Planning as the conduit to request resources (human, technology, facilities and funding) to further help improve and support programs.

BASIC PROGRAM INFORMATION

Academic Year
2021-2022

Are you completing a comprehensive or annual PRP?
Comprehensive

Division Name
Career, Technical and Extended Education

Department Name
Trade and Industry

Department Chair Name
Jennifer Anderson

Discipline Name
Water Technology Education (WTE)

Department Chair email
janderson2@palomar.edu

Please list the names and positions of everyone who helped to complete this document.
Jacob Shiba, Assistant Professor of Water Technology, Water Technology Program Coordinator

Website address for your discipline
https://www2.palomar.edu/pages/watertech/

Discipline Mission statement
Our mission is to educate and prepare all students, including those of diverse backgrounds, experiences, and abilities for careers and advancement in the water industry. Our committed, highly trained faculty and partnerships with Local, State, and National entities ensure that our graduates will have successful careers that improve their lives, their communities, and the economy. (this mission statement is new and was approved at the 2021 Water Tech Advisory Board Meeting)

Describe how your mission statement aligns with and contributes to the College's Vision and Mission.
When it comes to "transforming lives for a better future," one of the best ways to do this is through preparing students for a life long career that not only provides a living wage, but is also fulfilling through their contribution to their local community. Working in water allows them to directly serve and engage their local communities by proving life's most precious resource, water.

(click here for information on how to create a mission statement)

Does your discipline have at least one degree or certificate associated with it?
Yes

Are any of your programs TOP coded as vocational (CTE/CE)?
Yes

List all degrees and certificates offered within this discipline.
AS Degree in Water Technology
Certificate of Achievement in Water Technology
AS Degree in Wastewater Technology
Certificate of Achievement in Wastewater Technology

BASIC PROGRAM NFORMATION: FACULTY AND STAFFING RESOURCES

In this section, you will identify how many faculty and staff support your discipline's programs. This information is considered when you request permanent staff and faculty hires. It is also useful as you evaluate your program and the human resources and talent you have to support our students.

To help you answer questions in this section, you will need the two links below. An arrow will appear in the spreadsheet pointing to the data you will enter.

1) **Permanent Faculty and Staff Count**

2) **FTEF LINK**

How many permanent or full-time faculty support your discipline (program)?
1

For this past fall semester, what was your Full-time FTEF assigned to teach classes?
1

For this past fall semester, what was your Part-time FTEF assigned to teach classes?
1.07

List the classified and other permanent staff positions that support this discipline.
Trade and Industry academic department assistant

List additional hourly staff that support this discipline and/or department
None

PROGRAM INFORMATION

In this section, you are asked to consider and evaluate your programs, including their program learning outcomes, the annual number of completions, goals for completions, and enrollment and efficiency trends.

PROGRAM LEARNING OUTCOMES

Begin this section by reviewing the Program Review reports for programs and courses in Nuventive Improve (TracDat). All active course and program learning outcomes should be systematically assessed over a 3-year cycle. First, look at program learning outcomes.

- **Program** = Leads to a degree or certificate
- **Discipline** = A group of courses within a discipline

*Programs will be able to complete program completion and outcome questions.

How well do your program's learning outcomes communicate the scope and depth of the degree/certificate offered?
Program learning outcomes are well defined and show the student expected outcomes after completing the program. Expectations in the categories of Calculations, Equipment and Nomenclature, Problem Solving, Regulations, Oral Communications, and Written Communications provide detail on scope and depth of the awards offered. However, technology needs to be emphasized in the equipment-related Program Learning Outcome (PLO) to better align with ever-evolving technological advancements.

How do they align with employer and transfer expectations?
Program learning outcomes appropriately articulate industry expectations and are guided by the Water Technology Advisory Board that meets every year in Spring. Expectations in the categories of Calculations, Equipment and Nomenclature, Problem Solving, Regulations, Oral Communications, and Written Communications align with employer expectations and the knowledge, skills, and abilities that employers desire. Courses are currently at the 50-99 level and are in the process of being elevated to the 100+ level for transfer credit. Local program that will align include CSUSM and National University.

Describe your program's plan for assessing program learning outcomes.
The adequacy and accuracy of current PLOs are discussed with faculty at executive committee meetings, the Department Chair on an ongoing basis, occasionally with the Division Dean, and annually with the Advisory Board. If any changes to PLOs are considered, the agenda for the next Advisory Board meeting will include recommendations for changes to PLOs. The Advisory Board consists on non-faculty industry experts. The Advisory Board will consider if the recommendations align with industry expectations and form a consensus to the final wording for editing. The program coordinator will make agreed-upon changes to PLOs.

Summarize the major findings of your program outcomes assessments.
Program outcomes were assessed this Fall for the 2020-2021 year. As expected the recent Pandemic has generally caused a decrease in enrollment and success. However, water technology still saw program completions and overall success rates that meet discipline goals. There were no recommended changes to PLOs at the last Advisory Board meeting in Spring of 2021. However, it was agreed that courses need to be brought to the 100 level and that the WWT designation should be merged with WTE to represent one program. PLOs accurately reflect the needs of and expectations from of the water industry. However, changes to the equipment-related PLO that address evolving technology may need to be addressed at future faculty and Advisory Board meetings.

Depending on the degree or transfer goals of our students, there are three different GE pathways to choose from:

- Associate Degree GE Requirements
- CSU GE Requirements
- IGETC Requirements

Palomar College has identified a set of General Education/Institutional Learning Outcomes (GE/ILOs), which represent the overall set of abilities and qualities a student graduating from Palomar should possess. Click here for a link to Palomar's GE/ILOs.

Next, review your course outcomes as they relate to Palomar's GE/ILOs.

How do the courses in your discipline support GE/ILOs? In your response, please specify which GE/ILO(s) your discipline supports. You should refer to the GE/ILOs your program outcomes are mapped to in Nuventive.
Water technology supports the following GE/ILOs including: Communication, Computation, and Creative, Critical, and Analytical Thinking. These were recently added to Tracdat for future semesters. These courses require a high level of knowledge and understanding of complex concepts in order to apply this to real world scenarios for problem solving. Students are required to write, orally communicate, and take exams.

Summarize the major findings from your course outcomes assessments that are related to the GE/ILOsducation/Institutional Learning Outcomes that your discipline supports. You should refer to the GE/ILOs your course outcomes are mapped to in Nuventive.
Our courses saw success rates that met or exceeded discipline goals, often exceeding stretch goals. All courses are mapped to Oral and written communication, quantitative and information literacy, critical thinking, and teamwork.

PROGRAM COMPLETIONS

Are the courses in your discipline required for the completion of other degrees/certificates?
Yes

Please list them
Water Tech: WTE 50, WTE 52, WTE 52, WTE 56, WTE 60, WTE 64, and WTE 66 (Soon to be WTE 150, WTE 152, WTE 154, WTE 156, WTE 160, WTE 164, WTE 166)

Wastewater Tech: WWT 50, WWT 52, WWT 54, WWT 56, WWT 60, WWT 64, WWT 66 (Soon to be WTE 150, WTE 153, WTE 155, WTE 156, WTE 160, WTE 166, WTE 263)

Do you have programs with 7 or fewer completions in the last 5 years?
No

What is your program standard for program completion?
15

Why did you choose this standard?
This number includes degrees and certificates awarded in Water and Wastewater Technology, since the two designations will now be merged into one designation, WTE. This represents one program with two separate degrees. 15 represents the lowest number of completions for both programs in the last 6 years, a threshold we should strive to exceed.

What is your stretch goal for program completion?
40

How did you decide upon your stretch goal?
This is my 5 year goal as I continue to grow the program through increased outreach, increased industry awareness, and program improvements such as elevating classes to the transferrable level and increasing hands on equipment.

Student success is at the core of what we do in assisting students in achieving their goals.

The Chancellor's Office Vision for Success stresses the importance of Program Completion as a major goal for our students. In addition, transfer and career readiness are key components of Palomar College's mission statement. This year, our funding formula has also changed reflecting this emphasis, providing additional funding as a function of the number of completions.

In this section, you will reflect upon the number of completions students earned for EACH degree/certificate you offer. As required for accreditation, you are also asked to set a standard which represents the lowest acceptable number of completions and a stretch goal for increasing the number of awards.

Link to **Program: Completions**

Copy and paste five years of completion data for each of your discipline's degrees and certificates.
Water Technology
2020/2021
AS= 9
CA = 11
2019/20
AS = 4
CA = 6
2018/19
AS = 5
CA = 5
2017/18
AS = 3
CA = 6
2016/17
AS = 3
CA = 14
2015/16
AS = 12
Wastewater Technology
2020/2021
AS = 4
CA = 6
2019/20
AS = 4
CA = 6
2018/19
AS = 5
CA = 5
2017/18
AS = 3
CA = 6
2016/17
AS = 3
CA = 14
2015/16
AS = 12
CA =15

Have your program completions Increased, decreased, or stayed the same over the last 5 years?
Increased

What factors have influenced your completion trends?
Our completions have been somewhat of a U-Shaped curve in that completions decreased from FY16 to FY19 and have been increasing from FY19 to FY 21. These completions are impacted by the economy, pandemic, and program changes. Since starting in Fall of 2019, program completions have been increasing and this could be due to a variety of factors including: increased program outreach, increased class offerings, allowing classes to fly with lower enrollment, and increased student interaction/mentorship.

Our accrediting body, ACCJC, and the Federal Department of Education requires that colleges establish standards and goals for student success and completion.

A program-set standard for completion represents the lowest number of program completion you deem acceptable for your program. In other words, if you were to notice a drop below the set standard, you would seek further information to examine why this occurred and strategies to increase completions.

A program stretch goal for completions is the number of completions you aspire to award for each program in your discipline.

To determine your stretch goal, consider the number of annual completions you typically award over time, then consider strategies or efforts you are making to increase completions in your program. Then identify the NUMBER you want to set as your goal.

ENROLLMENT AND EFFICIENCY TRENDS

Your courses and offerings represent the path students take to complete their goals. Palomar has a very diverse set of programs and offerings and students have many paths they can take to earn a degree, certificate, or transfer.

In addition to student success and completion, enrollment trends, resources (FTEF), and efficiency metrics like FTES/FTEF are factors reviewed by the college when considering needs for staffing and program support. Evaluating these metrics also helps the College when developing class schedules to meet the needs of students.

Palomar College uses the WSCH/FTEF ratio as one indicator of overall efficiency in addition to the overall fill-rate for courses.

Although the college efficiency goal is 525 WSCH/FTEF and 85% fill-rate (minimal), there are many factors that affect efficiency (i.e. seat count / facilities / accreditation restrictions).

In this section, you will examine your enrollments over time and resources (FTEF) utilized to support or generate those enrollments.

This information can be found by looking at enrollment efficiencies.

Link to Program: Enrollment Trends

Have your enrollment trends increased, decreased, or stayed the same for your discipline over the past five years? (check box)
Stayed the same

Have your efficiency trends increased, decreased, or stayed the same for your discipline over the past five years? (Check box)
Increased

Were these trends expected? Please explain.
Keeping in mind the COViD-19 pandemic and a lack of available 2020-2021 data, the enrollment data does not have a clear trend. There was a large dip in Fall 2018, but Fall 2017 and Fall 2019 were very similar.
Efficiency increased and this was not surprising, as the program now has a full time faculty member for the first time in program history.

Program Information Summary

In this section you are asked to evaluate your programs by considering their program learning outcome assessments, the annual number of completions, goals for completions, enrollment and efficiency trends and any other internal or external factors that had an impact on your program.

What factors have contributed to the success of your program(s)? Describe how they have contributed.
Hiring a full time faculty member in Fall of 2019 has had a positive impact on the program. This has allowed for:
Increases in program outreach through high school career fairs, industry events/committees, social media creation, etc.
Program representation on campus to speak up for program funding, FTEF, class canceling, etc.
Facility and equipment improvements through donation facilitation and grant funding.

What factors have presented challenges for your program(s)? Describe the impact of these challenges.
Enrollment numbers have still been a challenge. When lower level classes with low enrollment get cancelled, the students that were enrolled may end up going to another college, delay completing their degree, decreases in degree completion, and decreases enrollment in advanced classes.
Time has also been a challenge when it comes to allocating faculty time between teaching 5 classes and coordinating the program. Responsibilities such PRPs, scheduling, adjunct assignments/hiring/evaluation, budgeting, lab purchases have to come first. This forces faculty to choose which other endeavors are prioritized, all of which will help to improve the program. The other activities include the various outreach methods, participating in industry events/committees, facilitating internships, acquiring new equipment, seeking additional grant funding, upgrading/improving lab equipment, etc.

COURSE INFORMATION

In this section, you will review how students perform in the courses you offer as part of your program. The Chancellor's Office Vision for Success stresses the importance of reducing equity gaps through faster improvements of underrepresented groups.

Data are provided to help you examine differences in course success rates (C or better) across student demographic categories (e.g., gender) and course type (e.g., face-to-face, online).

After you complete your review of course success data, you are asked about the assessment of student learning outcomes at the course level, progress you have made in these assessments, and changes you have implemented as a result/

COURSE SUCCESS AND RETENTION

ACCJC also requires that colleges establish institutional and program level standards and stretch goals for course success rates.

Program-set standards for course success rates represent the lowest success rate deemed acceptable by your discipline. In other words, if you were to notice a drop below the rate, you would seek further information to examine why the drop occurred and strategies to address the rate. The College's institution-set standard for course success rates is 70%

Program-set stretch goals for course success rates represent the success rates you aspire your students to achieve.

Link to Course Information

The data includes overall success (% C or better) and retention rates (% No Ws) . The data tables include course rates by gender, age, ethnicity, special population, location, and modality (You can access the Student Equity Plan on the SSEC website https://www2.palomar.edu/pages/ssec/)

What is your program's standard for Discipline COURSE Success Rate?
75.0%

Why did you choose this standard?
With the previous program standard set at the College's institutional standard of 70%, it was decided to set our program standard to 75% to ensure that we are exceeding the College's standard.

Have your overall course success rates increased, decreased, or stayed the same over the last 5 years?
Increased

Was this expected? Please explain.
Our overall trend first appears to be increasing over the last 5 years, however there was a decrease from Fall 2019 to Fall 2020. This was expected due to the pandemic and it's impact on online learning.

What is your stretch goal for course success rates?
80.0%

How did you decide upon the goal?
This goal represents a 5% increase from our goal and a 10% increase from the College's goal. This goal will be challenging to meet, but is completely possible.

Have your overall course retention rates increased, decreased, or stayed the same over the last 5 years?
Increased

Was this expected? Please explain.
Retention rates are again a U-shape curve, with rates dropping from Fall 2015 to Fall 2017, then rising from Fall 2017 to Fall 2019. Data for Fall 2020 will likely be significantly lower due to the Pandemic. Since I started in Fall 2019, I do not know exactly why retention dipped, however having a full time faculty starting in Fall 2019 likely contributed to the increase in retention that we are seeing.

Are there differences in success or retention rates in the following groups? (choose all that apply)

Gender Age

Gender: Why do you think gender differences exist? What do you need to help close the gap?
The water industry is one that has been historically dominated by males, which is starting to change as more women enter the water industry and as agencies recruit women. This trend is directly seen in our program. For example, only 12% of students in Fall of 2020 were female. Of these female students, 87% are successful, which is significantly higher than males, where only 74% are successful. We must keep in mind that our N is much smaller for females and therefore our data may be a less accurate representation. This increase in success may be due to the industry stigma and that women who do enter the program are more driven and motivated to be successful.

Age: Why do you think age differences exist? What do you need to help close the gap?
Our students that are 20 and older all have a success rate of 75% or higher, with students 50 and older having the highest success rate at 100% (keeping in mind there were only 15). Our only age bracket that is below this threshold is for those 19 and under, which sits at 30% for Fall 2020. Again keeping on mind that there were only 10 students in this category. Keeping all this in mind, our program has many career changers who are motivated to complete this program in order to achieve their career goals. This motivation and wisdom is likely contributing to their success. Students 19 and under is an issue that needs to be researched further and addressed accordingly.

Are there differences in success/retention between on-campus and online courses?
Yes

Please share any best practice methods you use for online courses.
There is a difference, however the water program has been dominated by in-person evening classes for many years now, so the only quality data for online courses comes from the pandemic driven online environment. Fall 2019 in-person courses had a 85.5% success rate, while the pandemic driven online courses in Fall 2020 had a success rate of 76%. It's also important to note that enrollment increased form 248 to 262 students from Fall 19 to Fall 20. Best practices for online learning include use of a live meeting component, constant student communication, forced student-student engagement, use of the module format in Canvas, and use of a variety of types of content, including PowerPoints, videos, live meetings, facility tours, articles, books, textbooks, etc.

COURSE STUDENT LEARNING OUTCOMES (SLOs)

Summarize the major findings of your course level student learning outcomes assessments.
Prior to Fall 2021, there were no student learning outcomes listed in TracDat for water and wastewater courses. In an effort to elevate all courses to the transferrable level, SLOs have been recently added for all courses and will be assessed regularly moving forward. Standard assessment methods have also been added to ensure proper evaluation and response to results. Preliminary results show that majority of courses are meeting their SLOs and are seeing success rates higher than the program goal, with some being higher than the stretch goal, even during the pandemic driven online environment. It was noticed that higher level courses tend to have higher success rates than entry courses such as WTE/WWT 50. This is likely due to a more solid foundation and more personal drive that students likely have by the time they get to advanced courses.

Reflecting on the major findings you summarized, what are some questions you still have about student learning in your courses that you have not yet been able to address with your outcomes assessments?
Historically, course prerequisites have not always been enforced. I am curious as to the role this plays in the success of students in more advanced courses. Prerequisites will be strictly enforced moving forward and it will be interesting to see how this impacts student success, as well as enrollment. Prerequisites may act as a barrier for enrollment.

What are some improvements in your courses that have been, or can be, pursued based on the key findings from your course learning outcomes assessments?
Requiring prerequisites should increase student success. Increasing hands-on learning experiences should increase student success as well. Ensuring that adjunct are following UDL best practices and considering SLOs in their course development will also be a key role.

Excluding courses that haven't been offered in the last three years, confirm that all of your courses have been assessed in the last three years.
No

If you answered no, please explain.
Prior to Fall 2021, there were no student learning outcomes listed in TracDat for water and wastewater courses. In an effort to elevate all courses to the transferrable level, SLOs have been recently added for all courses and will be assessed regularly moving forward. Standard assessment methods have also been recently added to ensure proper evaluation and response to results. Due to this massive recent undertaking, not all courses have been assessed. Many courses have been assessed though, and will continue to be assessed through this semester.

PROGRAM CURRICULUM ALIGNMENT, MAPPING, SCHEDULING, & PLANNING

The Chancellor's Office Vision for Success stresses the importance of decreasing the average number of units accumulated by CCC students earning degrees.

Palomar College's Guided Pathways plan includes clarifying paths for students by sequencing course offerings so that they support scaffolding and timely completion. Our goal is to ensure learning through:

- The mapping and assessment of clear program outcomes that are also aligned to employer and/or transfer institution expectations.
- Engaging and applied learning experiences.
- Effective instructional practices to support students in achieving success.

What is your departmental strategy on how you schedule your courses, including the time of day you offer courses? Do you use 4-week, 8-week, or block scheduling (putting required classes near each other) to organize required classes to meet the needs of disproportionately impacted students? Please explain.
A matrix of courses, room assignments, and times is developed for visual analysis with sensitivity to historical voids from courses cut due to low enrollment. Courses proposed are review before finalizing to see that the proposed course schedule and offerings align with the 2 year academic map. Required courses are separated by day based on the course level and water/wastewater path. Courses are currently offered in the evening only to accommodate those currently working, both in the water industry and other industries. Our long term goal is to be able to offer a day program as well, that focuses on recent high school graduates and more traditional college students.

How do you work with other departments that require your course(s) for program completion?
Now that the Public Works Management program has been phased out, there is no other program that overlaps with water technology. The only current considerations and with Welding and Woodworking, due to the nature of COVID and need for social distancing.

Does your discipline offer cross-listed courses?
Yes

How do you work with the other department(s) to ensure consistent curriculum per the COR and minimum qualifications? How do you coordinate course scheduling and SLO assessment?
Our current cross-listed courses are within the same department, WTE and WWT. This will no longer be an issue in Fall 2022, when all WWT courses are merged into the WTE designation. This will allow for one program, with two degrees.

Are there curriculum concerns that need to be resolved in your department? What are they?
I have been working extensively on curriculum over the last year to elevate courses to the transferrable level. This was a major concern and one that should be resolved by Fall 2022. Due to changes in the industry, specifically regulations and technology, curriculum must be constantly evaluated and updated.

Are there courses that should be added or removed from your program - please explain?
We are currently in the process of adding two new courses to the program as electives. These courses will be Fundamentals of Water Technology and Career Pathways in Water Technology. We will also be looking to add other courses over the next few years in an effort to expand the program and broaden our reach.

How is the potential need for program/course deactivation addressed by the department?
There is currently no need for program or course deactivation.

Are there areas you would like to expand?
We will also be looking to add other courses over the next few years in an effort to expand the program and broaden our reach. These courses will be suggested by the executive committee and advisory board, but as of now we are looking into: Water Resources, Water Conservation, Safety, and Advanced Water Treatment.

Describe any data and/or information that you have considered as part of the evaluation of your program.
Our primary drive comes from industry, as we are trying to prepare students for the job market. This includes looking at the types of jobs currently in demand and forecasted to be in demand and the KSAs and Certificates required for these positions. We have also looked an emerging program between Cuyamaca College and National University that allows Water Technology students to transfer to National and receive a Bachelors Degree in Public Administration with an emphasis in Water Resources. We also consider requirements for industry certificates in both the public and private sector including but not not limited to Water Treatment, Water Distribution, Wastewater Collections, Wastewater Treatment, Backflow, Instrumentation, Lab Analysis, and Water Use Efficiency.

To answer the next two questions, you will need to review your program maps and program information in the 2021-2022 Catalog.

Is the content in the program mapper accurate?
Yes

Is the content in the catalog accurate?
Yes

Has your department or discipline started having discussions about embedding diversity related issues or content in your curriculum?
Yes

If yes, describe your efforts. If no, what type of training or help do you need to do this work?
I have taken a deep look at our programs success and retention rates, as they relate to underserved populations. This was undertaken during Palomar's first SWFI Institute. This research has resulted in changes to syllabi, course outlines, course instruction, and curriculum.

CAREER AND LABOR MARKET DATA

The Chancellor's Office Vision for Success stresses the importance of increasing the percent of exiting students who report being employed in their field of study. It is important for us to consider how ***all*** of our programs connect to future careers.

Go to this website https://www.onetonline.org/ and enter your discipline in the bubble on the top right for ideas about potential occupations. Click on an example to see more detail.

The following websites are for CTE related data:

- Centers of Excellence (many other data resources besides supply and demand) Password: GetLMI
- LaunchBoard
- LaunchBoard Resource Library
- Chancellor's Office Data Mart
- Career Coach-San Diego Workforce Partnership
- EDD Labor Market Info
- Career One Stop

What kinds of careers are available for people who complete your programs (and/or transfer)? (Refer to link above) Are there any new or emerging careers? If so, how would the new or emerging careers impact your future planning?
According to the COC, careers include: "Meter Readers, Utilities," "Water and Wastewater Treatment Plant and System Operators," and "Pump Operators, Except Wellhead Pumpers."
There are many entry level positions at water agencies that our program is designed to prepare students for. Many of these positions require workers to have a grade 1/2 water treatment and distribution from the State of California and our classes not only prepare students for these certificates, but also qualify them to take higher levels. There are emerging career pathways in the fields of advanced water treatment (AWT) and water efficiency/water resources. These emerging fields will be addressed through addition of classes and qualified instructors.

What are the associated knowledge, skills, abilities (KSA's) needed for the occupations listed above? (click examples in the link above to get ideas)
Chemistry - Knowledge of the chemical composition, structure, and properties of substances and of the chemical processes and transformations that they undergo. This includes uses of chemicals and their interactions, danger signs, production techniques, and disposal methods.
Biology - Knowledge of plant and animal organisms, their tissues, cells, functions, interdependencies, and interactions with each other and the environment.
Mechanical - Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
Mathematics - Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
Production and Processing - Knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods.
Public Safety and Security - Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.

Operations Monitoring - Watching gauges, dials, or display screens to make sure a machine is working.
Operation and Control - Using equipment or systems.
Monitoring - Keeping track of how well people and/or groups are doing in order to make improvements.
Quality Control Analysis - Testing how well a product or service works.
Active Listening - Listening to others, not interrupting, and asking good questions.

Oral Expression - Communicating by speaking.
Oral Comprehension - Listening and understanding what people say.
Written Comprehension - Reading and understanding what is written.
Near Vision - Seeing details up close.
Deductive Reasoning - Using rules to solve problems.

How does your program help students build these KSA's?
Our program is designed around the KSAs required for these types of positions and is governed by our executive committee and advisory board. These KSAs are addressed through the type of content/information taught, the addition of hands-on experiences, and analysis of real world scenarios.

Work Based Learning

Applied and work-based learning (WBL) allows students to apply classroom content in professional settings while gaining real-word experience. WBL exists on a continuum that reflects the progress of experiences from awareness-building to training. Students often cycle back through the continuum many times throughout college and throughout their career. Faculty play a critical role in ensuring these experiences are embedded into curriculum and support learning.

Have you incorporated work based learning (work experience, internships, and/or service learning) into your program?
Yes

What have you done to integrate work-based learning?
All our courses have a field component that consists of a facility tour, either in person or virtually. All faculty have industry experience that they share with students. We are currently increasing our hands on equipment that will provide students hands on experience with the same equipment they will see on the job. We are currently participating in a regional internship program with the SDCWA and are also starting a brand new internship program with Vallecitos Water District.

How does your work-based learning help your students learn how to do some of the tasks associated with the potential occupations?
Their experiences directly relate to their potential occupations, as the equipment is the same and the facilities are the same as well.

How do you engage with the community to keep them apprised of opportunities in your program?
Community engagement is essential to program growth and enrollment. Outreach methods thus far have included: attending career fairs at high schools, giving career talks at high schools, attending benefits fairs at water agencies, presenting to high school career councilors, creation of social media, and participation with local water agencies. At the moment I sit on the advisory board for MSJC and Citrus College. I am currently assisting in planning a military career fair with Cuyamaca college. I also sit on the SDCWA's Workforce Development Committee.

What is the regional three-year projected occupational growth for your program(s)?
The COC projects 94 annual job openings in San Diego County from 2020 to 2025.

What is being done at the program level to assist students with job placement and workforce preparedness?
We have a current partnership with the San Diego County Water Authority to provide internships to selected Palomar students and are currently starting an internship with Vallecitos Water District. Courses are designed to prepare students for the job application process as well, including application, cover letter, and resume workshops. Local job opportunities are shared with students through various pipelines including an email blast, class announcements, postings on our website and social media.

When was your program's last advisory meeting held? What significant information was learned from that meeting?
Our meeting was held on 4/24/21. The Board agreed on prioritizing course elevation to transferrable level and merging of the two designations. This was suggested to be paired with a transfer program, such as the certificate program at CSUSM. New topics were discussed to include safety and AWT as future program classes. It was recommended that we work more with local organizations such as the CWEA and AWWA.

What are the San Diego County/Imperial County Job Openings?
The COC projects 94 annual job openings in SD county, however this figure does not take into full account the number of workers retiring from the industry. A survey conducted by Cuyamaca College in 2018 estimated that over 1,200 workers will be retiring in the next 5-7 years.

Program Goals

In the previous sections, you identified opportunities for improvement. Using these opportunities, develop 3-year SMART goals for your department. Goals should be Specific, Measurable, Attainable, Relevant, Time-Specific. Ensure your goals align with the mission of your department and/or the College's Strategic Plan.

Please list all discipline goals for this three-year planning cycle. Click here for previous PRPs and goal information.

If you require any additional resources beyond your exiting budget, please be sure to request those resources in the next section titled "Resources".

Goals

Goal 1

Brief Description
Purchase supplies and equipment to fully outfit the new water/wastewater lab with the latest technology in water delivery systems

Is this a new or existing goal?
Existing

Goal Status
Ongoing

How will you complete this goal?
This is will always be an ongoing goal in an effort to expand and replace equipment.
Goal partially completed with recent award of the 2020-2021 Perkins grant funding to purchase SCADA stations and equipment (laptops, licensing, PLCs, tank level monitors, etc) and recent award with the 2021-2022 Perkins award for purchase on hands on displays and dissectables.

Outcome(s) expected (qualitative/quantitative)
State of the art instructional facilities to better prepare students for technology used in practice today.
Increased enrollment and expansion of advanced courses.

How does this goal align with your department mission statement, the college strategic plan, and /or Guided Pathways?
This goal will help ensure that our students have hands on learning experience with the same technologies being used in the industry. By giving hands on experiences, students will learn about the career path and decide if this is the right path for them (Pillar 1 and 2). Once enrolled and while continuing to progress through classes students become increasingly challenged, learn more in-depth concepts, and obtain industry certifications along the way (Pillars 3 and 4).

Expected Goal Completion Date
6/30/2023

Goal 2

Brief Description
Revise curriculum to improve program

Is this a new or existing goal?
Existing

Goal Status
Ongoing

How will you complete this goal?
Converting all courses to transfer level courses through review and improvement of SLO's and COR's to be completed in META.
Merging of the WWT program into the WTE program.
Re-evaluate textbooks and other resource materials to maintain relevance to changes in technology and regulations.

Outcome(s) expected (qualitative/quantitative)
Curriculum that aligns with what industry anticipates from the program.
Classes that transfer for students who wish to pursue advanced degrees.

How does this goal align with your department mission statement, the college strategic plan, and /or Guided Pathways?
Improving curricula and raising the course standards will help to educate and prepare students for careers and advancement in the water industry. This will also help bring more students to enter the pathway (pillar 2) and will help keep them on the right path to completion through well defined SLOs (Pillar 3 and 4).

Expected Goal Completion Date
8/22/2022

Goal 3

Brief Description
Increase program awareness, enrollment, and completion

Is this a new or existing goal?
Existing

Goal Status
Ongoing

How will you complete this goal?
Increase outreach efforts with local institutions such as high schools, water agencies, industry groups/associations through career fairs, job fairs, presentations, demonstrations, and industry networking.
Some new marketing materials have been created and designed specifically for high school students.
These were distributed in Spring and Summer 2020, but presented unique challenges due to a lack on in-person events because of COVID. An Instagram was also created and will be constantly utilized to expand outreach.
A hands on demonstration display was recently purchased with grant funding and will be utilized at future career and job fairs once in-person events resume.

Outcome(s) expected (qualitative/quantitative)
Increased enrollment and therefore increase program completions.

How does this goal align with your department mission statement, the college strategic plan, and /or Guided Pathways?
In increasing enrollment and completions, Palomar will be providing high quality students to enter the workforce and advance in the industry. This goal really focuses on the first 2 pillars by creating awareness of the pathway and helping students to enter it.

Expected Goal Completion Date
6/30/2023

Goal 4

Brief Description
Increase student pathways to employment

Is this a new or existing goal?
New

How will you complete this goal?
This goal will be achieved through a multifaceted approach that includes existing goals and new methods including: increasing internship opportunities, increasing networking opportunities, increasing candidate readiness, and increasing industry connections.

Outcome(s) expected (qualitative/quantitative)
Increased student preparedness for the application process, increasing student qualifications for entry level industry positions, increasing hands-on learning experiences, and increased employment.

How does this goal align with your department mission statement, the college strategic plan, and /or Guided Pathways?
Yes, our program mission is "to educate and prepare all students, including those of diverse backgrounds, experiences, and abilities for careers and advancement in the water industry. Our committed, highly trained faculty and partnerships with Local, State, and National entities ensure that our graduates will have successful careers that improve their lives, their communities, and the economy." This goal directly aligns with our mission. By giving hands on experiences, students will learn about the career path and decide if this is the right path for them (Pillar 1 and 2). Once enrolled and while continuing to progress through classes students become increasingly challenged, learn more in-depth concepts, and obtain industry certifications along the way (Pillars 3 and 4).

Expected Goal Completion Date
6/30/2024

RESOURCES

Congratulations! You are nearing completion. In this section, you will consider the resources you need to implement your three-year program review plan and/or address any findings from your assessment of your discipline.

The section is organized into the following four parts:

PART 1: Staffing Needs (Faculty and Additional Staff)

PART 2: Budget Review

PART 3: Technology and Facilities Needs

PART 4: One Time Request for Other Needs (NonTechnology Equipment, Supplies, Operating Expenses, Travel)

PART 1: STAFFING NEEDS

Requests for faculty will follow the prioritization process currently in place in IPC, and the IPC SubCommittee. Requests for new staff positions will be prioritized at the division level and reviewed at Exec.

Are you requesting additional full-time faculty?
No

NOTE: If you are requesting full-time faculty, you must go back to the Labor Market section of the form to complete that section. It is required when requesting additional faculty positions.

Are you requesting new Classified, CAST or AA positions?
No

PART 2: BUDGET REVIEW

Review your Budget/Expenditure reports for fiscal year 2019, 2020, 2021. Consider your three-year PRP plan.

Click on the link below to access directions to the *Available Budget Report* to complete this section.

How to Request the Available Budget Report

Reflecting on your three-year PRP plan, are there any budget considerations you would like your dean/supervisor to be aware of for the upcoming year?
Yes

What budget considerations would you like your dean/supervisor to be aware of or to consider? Please be as specific as possible. For example, if you need an increase in the 40000 account and a decrease in the 23000 account, describe what increase your department needs, how much, and a description of why the department needs the adjustment.
The water technology program currently offers 2 laboratory classes with an estimated total annual cost of $3,350. This represents the minimum cost to run these two lab classes and does not include funding for program improvements. Details below.
Laboratory Analysis- Unfortunately, lab equipment can be broken or needs to be replaced to keep up with new technology. It is estimated that one of the following will need to be replaced each year: pH probe- $189, Pocket Pro+ Multi 2 Tester for pH/Cond/TDS/Salinity- $230, Traceable Portable Dissolved Oxygen Meter Pens- $499. There are also lab materials that need to be replaced each year including KIM wipes, standard solutions, various sampling bottles, etc. that total an average of $150 each year. This brings the total to approximately $1,200 including tax and shipping.
Backflow- This lab requires constant maintenance and upgrading of equipment utilized every lab period by students. Backflow test kits need to be replaced when broken or as they degrade over time and it is estimated we will need to purchase one per year- $850. Majority of backflow devices currently being used have been donated by local water agencies, but they need to be maintained and eventually replaced. Averaging one per year at a cost of $750 for the backflow device and $250 for connecting pipe and material. The total cost for this is estimated to be $2,150 including tax and shipping.

Water Tech was recently awarded $28,922 from Perkins that will go toward purchasing hands on demonstration equipment and dissectables. Some maintenance can be performed by faculty and some may require a qualified technician. The cost for labor is estimated at $110/hour with approximately 8 hours of work to be done in phases each year. Supplies will equilibrate to approximately $1,000 per year, bringing the total to approximately $1,900.

Water Technology was also awarded funding for the purchase of laptops from the 2020-2021 PRP. These laptops are still in the process of being purchased.

NOTE: PARTS 3, 4 and 5 – TECHNOLOGY, FACILITIES AND OTHER NEEDS

1. One-Time Fund Requests. The college is implementing a process for prioritizing and allocating funds for one-time needs/requests tied to Program Review and Planning. Prioritization will take place through participatory governance in planning councils and the Budget Committee. Then, a recommendation will be made to Exec for funding of request utilizing various funding sources.

   For more information about funding sources available, see IELM BLOCK GRANT, LOTTERY, PERKINS AND STRONG WORKFORCE GUIDELINES.

   Consider submitting one-time requests only if you have verified that you cannot fund the request using your general discretionary funds or other funds.

2. Technology and Facilities Review. From now on, ALL requests for technology will go through an institutional review process. If you request technology here, you will see a description of the process below.

PART 3: TECHNOLOGY AND FACILITIES NEEDS

Will you be requesting any technology (hardware/software) this upcoming year?
No

Part 4: Facilities Requests

Do you have resource needs that require physical space or modification to physical space?
Yes

Facilities Requests

Facility Request 1

Will you fund the request through your budget or other sources?
Existing Budget

What are you requesting?
Complete installation of permanently mounted backflow devices in the outdoor water lab

What discipline PRP plan goal/objective does this request align with?
Facility Improvements

What Strategic Plan 2022 Goal:Objective does this request align with?
1:4

Provide a detailed description of the facilities item or space requested. What is it, and why do you need it? Please be as descriptive as possible. Include in your description how the requested item aligns with your discipline's PRP goals, analysis of PRP data, SLO/SAOs.
Some of our backflow devices are already permanently mounted and have been for a few years. The mounting units are already in place and the devices are already in possession, it is simply a matter of getting them installed, which will require labor and minimal mounting parts such as screws, brackets, pipe fittings, etc.

Is there an associated cost with this request?
Yes

What impacts will this request have on the facilities/institution (e.g.,water/electrical/ADA compliance)?
The water pipes already exist so we will just be adding new connections. These devices do not require electrical and will not be changing any existing permanent structures.

PART 5: OTHER ONE-TIME NEEDS

For more information about funding sources available, see IELM BLOCK GRANT, LOTTERY, PERKINS AND STRONG WORKFORCE GUIDELINES. Please check with your department chair on the availability for this cycle.

Do you have one-time requests for other items (e.g., Non-Technology Equipment, Supplies, Operating Expenses, Travel) that your budget or other funding sources will NOT cover?
No

I confirm that all full-time faculty in this discipline have reviewed the PRP. The form is complete and ready to be submitted.
Yes

Enter your email address to receive a copy of the PRP to keep for your records.
jshiba@palomar.edu