

Administrative Response to Program Review Civil & Mechanical Engineering Technology (CMET) Program February 2019

On February 8, 2019, the Civil & Mechanical Engineering Technology SAC presented their Program Review findings to an audience of PCC administrators, community stakeholders, students, and others with an interest in the discipline. The presentation was informative and thought provoking, with active engagement from students and alumni.

This Administrative Response will: A) note particular highlights of the CMET program and Program Review; B) provide observations and recommendations; and C) provide the administrative response to the SAC recommendations/resource requests.

Noteworthy Efforts or Achievements

- A well prepared and organized program review document.
- A presentation that actively engaged the audience with a mixture of presentation, a tour of facilities, demonstration, a student panel, and Q&A.
- Demonstrated commitment to hands-on, contextualized, and other effective learning practices.
- Commitment to mapping courses and learning activities; scaffolding and reinforcing concepts throughout.
- Passionate, committed faculty who demonstrate a willingness to be responsive to student needs.
- Tremendously successful rates of scholarship funding to the program. Receipt of over 1.2 million dollars in scholarship funding through the National Science Foundation Scholarship for Science Technology Engineering and Mathematics (S-STEM) since 2003. One of three programs nationwide to receive 16 consecutive years of S-STEM funding.
- Very positive feedback from students on the quality of instruction and responsiveness of faculty.
- Committed, supportive, and engaged advising support for the program from the assigned Perkins advisor.
- Strong response from female-identified students about the support, encouragement, opportunity, and role-modeling they have received in the program. This is especially notable since even now, women in engineering

fields is quite low nationally and only comprise about 12% of your CMET student population.

Observations and Recommendations

- We note a steady decline in enrollment. You provide several hypotheses in your program review document, including that CMET is not known to students. We would encourage you to consider surveying incoming students to learn more about how they have learned of the CMET program and what motivated them to consider the program. These factors may inform a more strategic recruitment effort.
- As you acknowledged in your program review, there is room for growth in expanding industry connections and better engaging your advisory committee to offer feedback on the program and necessary enhancements. We recognize that our PCC partners in Workforce, Community Relations, and the Foundation may be important collaborators in these efforts.
- In alignment with the college's commitment to equitable student success, we'd like to request that you please review course pass rates by student demographics to evaluate whether there are areas for improvement in culturally inclusive teaching.
 - [Course Pass Rates by Student Demographics - 3 Terms Trend- by Term Only - PDF tutorial](#)
 - [Course Pass Rates by Pass/No Pass and by Student Demographics - by Term or Academic Year -PDF tutorial](#)
- With regards to assessment of student learning (Section 2), improvements to instruction were noted at several levels, but the link to intentional assessment of student learning is not clear. For example, the concerns about students' knowledge of chemistry seem to be anecdotal rather than based on the results of assessment. The collaboration with the chemistry faculty to improve the situation is laudable, but without measured parameters, it's hard to evaluate the effect of that work. Similarly, it is great that you have made changes to improve student attainment of outcomes, but these do not appear to be based on evidence that the outcomes were not being met to the SACs expectations. Accreditation expects us to use assessment to identify targets for improvement of teaching and learning, to act on them, and to reassess to see whether those changes were effective, or if something else needs to be tried. This "closing the loop" provides evidence that we are looking closely at what students are learning, and where they might be struggling, and adapting our

practices accordingly. As you continue to assess and report on student mastery of outcomes, please keep this principle of evidence and “loop closing” in mind, and do not hesitate to connect with your LAC CTE coach and/or the Office of Academic Affairs for assistance.

- The SAC has not developed SAC-specific questions for Course Evaluations. We encourage you to consider using the course evaluation system as a method of gathering student feedback to inform curricular changes and offer the SAC information on necessary training.
- We note that only one faculty has participated in PCC’s Social Justice training and would like to encourage greater participation in PCC sponsored culturally responsive teaching and social justice training opportunities.
- The program review document acknowledges that the CMET pedagogy is unique, but may be blocking access to some students. We agree with the pros and cons listed in the program review document and support your plans to investigate the program structure and curriculum, determining the appropriate contact time and instructional delivery methods to meet the needs of the students in 2020 and beyond. Please see below under administrative response for more information.

We are pleased with the many advancements this SAC has made since the last program review and with the commitment we see from your SAC to promoting student success. We urge you to continue to keep up the great work.

Administrative Response to Recommendations

After careful consideration of your program review and recommendations, we have decided (in consultation with President Lisa Avery, Vice President of Academic Affairs Katy Ho, and Division Dean Sarah Tillery) to enact the following in support of your program:

- CMET to pause enrollments for one year to allow for a 2-year realignment of the CMET program.
- Lead faculty will be assigned to CMET to take charge in the realignment process. Lead faculty will be selected by the division dean, with input from the CMET faculty.
- Assigned lead faculty will receive release time to realign the curriculum in an effort to make it more accessible both in terms of the time and credit commitment to students but also in the ways the CMET SAC described in

the program review (i.e., hybrid and OER developments, etc.), and incorporating meaningful assessment of student learning that can inform changes to instructional practice to improve teaching and learning. Faculty and administration will also use this time to work on building stronger advisory board and industry connections, utilizing input from industry to inform curricular restructuring.

- As part of the curricular review and realignment process, we request that you analyze the number of credits required to complete the degree, understanding that there needs to be very clear rationale for expanding beyond 90 credits. Your Division Dean can assist in this process.

Below you will find a response to each recommendation presented by the CMET SAC to administration.

Recommendation: *CMET has an opportunity to increase the diversity of the incoming student population. CMET needs support from the PCC Marketing Office to help make this happen.*

- **Response:** We appreciate your understanding of the importance of doing outreach and recruitment to enlist a more representative student body. The PCC recruitment team is expanding and our PCC marketing office is shifting their focus to provide more support in highlighting our incredible PCC offerings. As part of the program realignment process, we ask that you work with your division dean to partner with our Sylvania assigned recruitment team members, Strategic Communications Office, and our Sylvania Community Relations Manager to refine and expand our CMET recruitment strategies. Further, the Perkins advisors assigned to the EE&IT Division will also be supporting additional outreach activities as a part of their workload.

Recommendation: *Adding the engineering image to computer lab spaces for students to access department specific software is important. The department would like to have CAD specific software be installed on the computer resource computers.*

- **Response:** We understand the importance of giving students access to computer technologies they will use in their field. As instructional leaders, we are very supportive of this request. These areas fall under the purview of IT leadership. Please work with your division dean to make a formal request to IT.

Recommendation: *Faculty have a number of years acquiring grants from the National Science Foundation. To support the CMET change we request Administration support for applying to the National Science Foundation's (NSF) Advanced Technology Education grant program. To apply for the grant requires an administrative-level sponsor/Champion. Second is a small amount of release time for a faculty CMET Program Review 2018-19 28 member. Faculty have experience managing a national Center for NSF and can provide knowledge, experience and leadership to a proposal. There is a need for one (1) lab's worth of release time during spring quarter 2019 to work with the administrative sponsor and the Grant's Office to prepare the grant. The proposed writing of this grant is timely as it can be written as a collaborative effort. The three legs of the development triangle would be the internal PCC support of the proposal, the CMET change, and the recent PCC Career, Technical Education (CTE) bond. The focus of the grant will be on CMET's challenge to change the ratios of gender and race within engineering technology.*

- **Response:** We acknowledge the importance and efficacy of accessing outside funding opportunities to focus on pressing and critical issues such as this. Please work with your division dean to explore the viability of supporting this grant application during (and before) the program realignment process.

Recommendation: *Decrease the amount of time and practical barriers for Part-time faculty to receive four essential abilities before the start of classes: Keys, Key Card Access, Copy Code, PCC Computer Login Access.*

- **Response:** We recognize the need to decrease barriers for our adjunct faculty and appreciate your advocacy. Some divisions are developing consistent internal processes to aid in onboarding new part-time faculty and streamlining these processes. We encourage you to work with your division dean, division leadership team, and IAAs to develop a system that would work well for your team.

Recommendation: *Financial support to visit some successful Civil and Mechanical Engineering Technology programs in the region and US. A contingent of the CMET faculty would travel to two (2) to three (3) programs that demonstrate exceptional rates of placing students at graduation. One example locally could be Clackamas Community Colleges Water and Environmental Technology (WET) Program. Regionally, North Seattle Community College has had great success in NSF grant funding and incorporating results into their programs. Nationally, looking at large,*

western institutions with engineering technology programs would be our guidelines.

- **Response:** As part of the program realignment process, we are committed to providing funds to allow 1-2 CMET faculty to visit two to three programs, recognizing that financial constraints may limit us to regional programs. Please work with your division dean to submit a cost proposal to be submitted to the DOI.

Recommendation: *Continued support from the PCC Degrees and Certificates Committee and the PCC Curriculum Committee to evaluate and approve CMET's degree, certificate, and course revisions. In particular, support for the creation of a CMET Capstone class, and MET and CET degree changes.*

- **Response:** While we cannot respond on behalf of your Degrees & Certificates and Curriculum Committee colleagues, we have witnessed strong support of all PCC programs from these committees and anticipate this support to continue. Please continue to work with them as you make changes/improvements to the degrees and the courses as part of the program realignment process over the next two years.

However, we note that your CMET degree already sits at 101 credits and we have concerns about adding an additional course that would move you beyond 101. In line with recommendations to analyze the number of credits in your program, should you add a Capstone, you'll need to find a way to do so without raising the number of credits required.

Recommendation: *CMET has developed more curriculum and course project revolving around CAD (Computer Aided Drafting). A CAD lab with 32 seats and drafting space, printer, and instructor podium is needed. Currently, CAD is only installed in AM106, AM107 (24 seats each) and AM103 (10 computers). Two of these rooms, AM106 and AM107 are scheduled very tightly with CMET and ENGR classes. They are rarely, if at all, available for student project or homework use. AM103 has some computers and CAD software, but not enough computers for a class worth of students to use and there is no instructional capability where the computers are located in AM103.*

- **Response:** There may be opportunities for cross-departmental/cross-division collaborations and utilization of existing computer labs to better support our students and departments. Please work with your division dean and DOI to explore such partnerships. We

could explore the option of accessing Perkins equipment or other support funds to rework current spaces to become more functional.

Recommendation: *An opportunity for CMET faculty to go on sabbatical to develop open education resources and/or hybrid courses. A sabbatical for one eligible CMET faculty before the next program review is ideal.*

- **Response:** We encourage faculty to make use of the Professional Leave opportunities offered through the Vice President of Academic Affairs office.

Recommendation: *Room, technology and food support for a 2-year CTE version of OCERTE (Oregon Engineering Transfer bi-yearly meeting) to host the first meeting on the PCC campus. Community College CTE faculty all across Oregon will be invited to the meeting. A room, technology, parking and food support is needed when PCC hosts the state-wide OCERTE meeting*

- **Response:** We are eager to support partnerships with your CTE colleagues across the state. Please work with your division dean to develop a proposal of funding and other resources needed and we will explore funding opportunities.

Recommendation: *Support from the PCC Foundation, PCC Board of Trustees, and PCC President's office to assist with invitations to new CMET Professional Advisory Board members.*

- **Response:** While we cannot respond on behalf of these offices, we are very supportive of finding ways to engage and expand advisory board participants. Our Sylvania Community Relations Manager can work with you and your team to brainstorm ways to reach out to industry partners in the area and can help explore possible partnerships with PCC offices who are immersed in creating industry connections to support these efforts. In addition, the Office of the Vice President of Academic Affairs interested in hearing more from your program about specific needs, ideas, and suggestions about working with your advisory boards, especially as the college reviews how to better support programs and their advisory boards

Recommendation: *Support from the PCC administration to include part-time faculty in the Program Review Process. Compensation for Part-time faculty to participate in Program Review meetings and work on the Program Review Report and Presentation (similar to how Part-time Faculty are compensated for SAC meetings).*

- **Response:** The Dean of Academic Affairs Office provides a 10 hour stipend to SACs to support program review. Many SACs use this funding to engage part-timers in the program review process.

Recommendation: *Administration support for the creation and adoption of OER textbooks in CMET courses.*

- **Response:** As mentioned above, as part of the program realignment process and release time provided, you will be afforded the opportunity to create/adopt OER.

Recommendation: *Support from administration to modify some current face-to-face courses into hybrid courses.*

- **Response:** As mentioned above, as part of the program realignment process and release time provided, you will be afforded the opportunity to modify some courses to be offered in hybrid format.

Closing

In closing, we want to again thank the CMET faculty for sharing the results of your program review with us. We enjoyed learning more about the discipline, your successes, and vision for the future. We look forward to supporting your ongoing work and continuous program improvement.

Administrative Response submitted by Karen Paez, with input from and on behalf of the Deans of Instruction and Dean of Academic Affairs.

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Note: Division Dean of Engineering & Industrial Technology, Sarah Tillery has also contributed to the responses provided herein.