

2018-19	50% (4)	78 (109)	56.6 (76)	68.4 (1,384)	50 (8)	67 (142)	78 (831)	52.8 (36)
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The college success rates decreased in success rates for American Indian/Alaska Native (72% to 67.7%), Asian (80.9% to 77.4%), Black/African American (62.3% to 60.8%), Hispanic (67.2% to 66.2%), Two or more races, and White (75.6% to 74.1%) students. The college had an increase in Pacific Islander (54.6% to 61.8%) and Unknown (66.7% to 69.7%).

Measuring Goal Success:

This goal is exploratory in nature and it is our intention to understand the needs of our students on ground and online.

Computer Sciences

Resilient Recovery with Equity through Software Engineering - Full-Time Faculty Hiring Request

Program/Unit:

Computer Sciences

Name of Person Completing this Form:

Michael Paulding

Summary Statement of Need:

To hire a full-time faculty that will exclusively focus on our advanced/capstone courses (primarily *CS113: Basic Data Structures and Algorithms*, as well as a new *Software Engineering* course we are proposing this semester) by addressing our equity-gap in terms of retention/success of African-American/Black, Chicanx/Latinx, and Pacific Islander students, as well as address the diversity/inclusion of those student populations. Per our “Building Local Alliances To Establish Local CS Career Pipelines” action plan, we’d like to have a full-time faculty who can focus specifically on maintaining the currency of our CS113 and new *Software Engineering (SE)* course. Additionally, this request would look for someone with significant industry experience and connections to create pipelines for internships that students can participate in while they persist through our main courses (those for transfer and certificate/associate degrees): *CS101: Intro to CS Principles*, *CS111: Intro to CS I - Java*, *CS112: Intro to CS II - Java*, *CS113: Basic Data Structures and Algorithms*, *CS220: Computer Architecture and Assembly Language*.

Furthermore, the Computer Science department has partnered with Advancing San Diego, a regional effort to address software engineer talent shortages by strengthening alignment between business and education systems. This working group of 17 companies based in San Diego has projected they will hire 1,734 entry-level software engineers over the next three

years. Of all critical software positions, software engineers are of the highest demand among working group companies, accounting for 54% of total projections. Software engineers at the entry-level, more specifically, represent the highest need of any position at any level. The Computer Science department has earned “Preferred Provider” status with Advancing San Diego, which will provide our students with opportunities for paid internships with the 17 companies, while concurrently pursuing their degrees, with the intention of transitioning to full-time, software engineering positions at the companies. It is imperative to hire a new, full-time CS faculty member to lead this initiative, deliver the new Software Engineering course and support the advanced/capstone courses offered by the department.

In the last cycle of full-time faculty hiring requests, the Computer Science Department had 4 full-time faculty. In December 2019, long standing faculty member, June Porto, retired from MiraCosta College and since then, our department has been operating at a reduced workforce of only 3 full-time faculty, having hired 2 in the last three years due to the high demand of courses and projects we have been involved with. Although not finalized, we have begun to discuss how to best divide the department into specializations to begin providing structure for the continual growth we foresee in sections, students, associate faculty, and staff. The goal is to provide space and time to intentionally mentor associate faculty who, in the past year, have demonstrated a commitment to updating their classroom practices and teaching new courses. In this way, each full-time faculty can mentor a group of associates with sections under their specialization to further our department culture of collaboration and teamwork.

Should the request not be funded, it would stall the explosive demand and growth our department has felt and foresees. For the past year, despite nearly 100% fill rates at a time when the college’s enrollment stats are down, we have seen no section growth or hiring of associate faculty. However, this coming Spring 2022 we will have 5 new sections, most of which are advanced courses (CS113, CS112, CS151: Advanced C++ Programming, CS138: Programming with Python). New associate faculty will need to be hired regardless of this request being funded, the difference would be in how well our associates are supported and the ability to continue growing at this impressive pace.

Area 1: Departmental and Institutional Planning:

1. To give an idea of where the new faculty hire would fit into the department, here is an example of a potential restructuring of department roles: Catherine Walker was recently hired to spearhead culturally sustaining pedagogy and active learning practices in CS101 and CS111 to address our equity gaps at the start of our students journey, breaking barriers in our gatekeeper courses. Michael Paulding was hired the year before for his curriculum and professional certification experience, he has also supported the updating of our capstone course (primarily *CS134: Mobile Device App Development and CS220: Computer Architecture*) through the Strong Workforce Program. The most senior full-time faculty, Nery Chapeton-Lamas (Chair), has been a generalist at a time when the department was much smaller. Longtime faculty member June Porto retired in December 2019, leaving a substantial gap in the offering of CS courses. This has left associate faculty to fill in the bulk of CS courses. Furthermore, with the breadth of projects our department has completed and continues, the high demand from students to open more sections and on multiple campuses, higher need to update our courses/curriculum/degrees, and projected growth of our discipline/department, we find the need for another full-time colleague to shoulder some of those responsibilities. This

requested position would be responsible for the capstone courses (CS113, new Software Engineering course, and potentially CS220) to free Michael up to oversee the cleanup and renovating of our certificates/degrees, along with integrating industry certifications into our courses. Nery is working with CSU San Marcos to refocus on CS101, CS111 and CS 112, of which almost half of our sections fall under these two courses.

2. In this way, they can further the work of addressing our departments equity gaps through our “Echándole Ganas: Supporting Student Communities To Support Student Success” action plan to create CS courses for the Academic Success and Equity (ASE) programs. This action plan in particular coincides with the developing Student Equity Plan and Long Term Planning.
3. The new CS 210 Software Engineering course is the terminal class we can offer as a community college that would articulate fully to the 4-year universities. In fall 2021, CS 210 earned UC transferability as admission credit and is now a required course in our new AA and CoA in Software Development, also launched in fall 2021. We are currently the only CC in North County that offers a full transfer pathway for CS, and one of the few in San Diego. The course also aligns with a booming industry, one that CSU San Marcos has recognized and recently started as a Software Engineering program, the first of two Engineering programs in North County SD. The next closest colleges our students could transfer to for engineering (such as Computer/Electrical Engineering) would be San Diego State University, UC San Diego, and Long Beach State.
4. Our department has continued to discuss the impact an additional new-hire would have in helping sustain growth demands by first identifying the need to create a consistent, cohesive, and collaborative culture in the department. We began the process 2 years ago by having more frequent and relevant department meetings where we discussed student success, retention, and course challenges more often. In the last year, the discussions have shifted towards a more holistic view of our students with discussions around equity in CS education. Recently, Counseling Department Chair Adrean Askerneese presented data of adult re-entry students, both at the college and department level. This has affected the way we schedule classes and explore other courses that would benefit our students. Both associate and full-time faculty have separately brought it to the Chair’s attention a demand and interest in creating a Software Engineering course. In consultation with Dean Al Taccone and several full-time colleagues, there was a consensus that a new hire with this focus would serve our students and department needs the best.
5. The current full-time faculty have employed formal mentoring practices for associates (department meetings twice a semester, ad-hoc coffee/lunch meetings, email follow-ups, and weekly Zoom meetings for faculty teaching a new-to-them course) to help transition new faculty and address best practices in improving low retention/success rates. Additional full-time faculty are needed to continue these practices as we begin opening new sections and creating new courses, requests that we are receiving from our students and seeing in our data (i.e. CS Annual Fill Rate 2019-2020 exceeded 101%).
6. WSCH over the 2017-2020 time period grew by 4.6% and 6.3% over the 2019-2020 period alone. The percentage of FTEF taught by part-time faculty had increased from 57% to 66% in 2019-2020 even with the addition of a full-time instructor.
7. It rose to 85% in 2017-2018 and is at 66% after a third full-timer was hired in 2020. Although the data is not available for 2020-21, with our latest hire from 2019, a fourth-full timer would increment bring our FTEF down to 55%. However, this will be short lived because next semester we will open 5 additional sections (even with two faculty working overload).

Attached Files

[ComputerScience_MainSummary.pdf](#)

[ComputerScience_EnrollmentMetrics.pdf](#)

[ComputerScience_EfficiencyMetrics.pdf](#)

Area 2: Student Success and Equity:

Note that Schools of Career Education (CE) and Math & Science (M&S) are used as points of comparison since Computer Science (CS) is under CE because of our strong job training focus and demands, but our course content, curriculum, and field also aligns strongly with M&S, which is our Academic and Career Pathway (ACP). All credit (credit) will be used as well as a point of reference to the larger institution because all of our courses are on the credit side. We feel these data points will serve to provide a more thorough comparison of the quantitative data of our department.

Key data trends observed in regards to:

- Rates hover between 54.6%-64.4% for success and 65.7%-74.8% for retention, even with EW grades included. This is 5-15 percentage points lower when compared to CE, 5-10 points lower when compared to M&S
- Most dropped courses (W) were CS111 (Intro to CS I: Java) and CS138 (Programming with Python) which are both introductory courses with high articulation demands.
- Most failed courses (DF) were CS107 (Introduction to Object-Oriented Programming) and CS130 (Fundamentals of Scripting Languages) which are both introductory courses that usually do not articulate for transfer. The former has served as an advisory pre-req for CS111 (now sunset and replaced by CS101) and the latter as the second of our two online courses our department offers
- Most successful courses (ABCP) were CS220 (Computer Architecture & Assembly), CS151 (Advanced C++), CS113 (Data Structures & Algorithms)
- Using MiraCosta's Student Equity Plan's definition of disproportionate impact (DI), we use the Percentage Point Gap as an indicator. The groups in CS that pass the PPG threshold are as follows
- Over the past seven years (2013-2020), overall success rate was 58.6%
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 - Pacific Islander was 50%
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 - Black/African-American was 53.3%
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 - Hispanic was 55.9%
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- -
 - 50+ was 58.9%
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- Men of color (American Indian/Alaska Native, Black/African-American, Pacific Islander) and Hispanic females experienced DI
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- Relatively equal (58% female, 58.8% male) except for Unknown/Decline (35.7%, 14 students). However, female students constituted 16% of the CS program
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- Should be noted that although women of color tended to be more successful than men off color, their percentages within their race/ethnicity was lower than overall 16% (838 students):
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 - - Black/African-American 7.8% of demographic (6 female students)
 - - Hispanic 15.2% (200 female students)
 - - Pacific Islander 40% was the only higher demographic, but consisted of 8 female students
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- Last year (2020-2021), overall success rate was 71.4%
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 - Pacific Islander was 75%
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 - Black/African-American was 63.6%
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 - Hispanic was 62.3%
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- 50+ was 72.2%
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- Hispanics (both), Pacific Islanders (both), and Black/African-American men experienced DI
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- All succeeded in 60+% (65.1% female, 61.3% male, 60% unknown)
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- Should be noted that although women of color tended to be more successful than men off color, their percentages within their race/ethnicity was lower than overall 22% (212 students):
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- Black/African-American 14.2% of demographic (2 female students)
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 - Hispanic 22% (64 female students)
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 - Pacific Islander 33.3% was the only higher demographic, but consisted of 1 female student
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 - The lowest three (by race/ethnicity):
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 - The lowest three (by age):
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 - Intersecting race/ethnicity with gender:
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 - By gender:
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- Substantial growth in both FTES and WSCH in:
 - Last seven years (128% CS vs. 10% CE, 10% M&S, 6% all credit)
 - Last two years (14% CS vs. -2% CE, -4% M&S, -4% all credit)
 - Last year (5% vs. 1% CE, -1% M&S, -1% all credit)
- The growth has not been as steep the last couple of years due to lack of associate faculty, CS111 success rates, and restriction of section growth by college
- Out of all students who initially started CS111, 60.8% completed the course. Of those that completed CS111, 57% attempted CS112. These are the steepest drop-offs in the data provided by RPIE
- Similar DI trends that were noted above exists within this longer view of the data

In efforts to address equity gaps for the last 2+ years, the department has actively supported three clubs, two in particular to address our consistent equity gaps: Women in Computer Science (WiCS), Empowering Chicanx and Latinx in Exploring STEM (EChALE STEM), and CS Club.

EChALE STEM Club summary:

Founded Spring 2018 with a purpose primarily aimed to serve students interested in STEM Majors with a Chicanx/Latinx background in order to bridge the gap between higher education and culture/traditions. The club was created to fulfill a deep need several faculty members have noted when supporting Chicanx/Latinx students: a sense of community to retain students, empowering them to thrive.

Meetings generally occur every Friday 3-5pm on Zoom and include cultural presentations/discussion, technical workshops, outreach, industry/student/faculty panels, campus-wide events (Posada), fundraising, self-care/social, and study halls

By far most variety of events, most frequent, and fastest growth of supported clubs. Club is routinely asked to participate in events and presentations on/off campus

The data above shows the growth of the club, not simply in terms of attendance but also in the diversity of events over the semesters as the club leadership reflects and iterates on the way they create community for the institution

WiCS Club summary:

Founded Spring 2018 with the purpose of helping and encouraging women to pursue a successful career in the field of Computer Science, and to promote, support, and retain the growing community of this historically underrepresented community in the field.

Meetings generally occur every Friday 4:30-6:30pm in Oceanside and include technical workshops, outreach, industry/transfer guest speakers and panels, and discussions around topics like feminism and womanhood in tech

New leadership this semester has been proactive, engaged, and empowered to live the mission of WiCS.

CS Club summary:

Has gone through multiple iterations, most recent (and successful) one founded Fall 2017 with the purpose of creating a sense of community for a challenging and often isolating field, providing a space to explore new technical skills, techniques, and projects outside of the CS program material.

Meetings generally occur every Friday 3-5pm in Oceanside and include technical workshops/presentations, technical activities, project demonstrations, coding challenges, and project development time

Largest and longest running supported club, currently experiencing growing pains from building large community that has lasted multiple years and transitioned multiple student leadership

Student Success and retention over the past seven years (2013-2020)

Grade distribution by course over the past three years (2017-2020):

Student success by demographic group:

WSCH and FTES

FTEF more than doubled in last seven years (136%), much faster growth than CE (18%), M&S (22%), and all credit (16%). For last year (2017-18), percent part-time was 85%, addition of new colleague next year will bring us down to 77.5% but anticipating growth of sections based on student demands and fill rates will expect this to go back up.

Number of degrees, certificates, and diplomas awarded has held to consistent levels since increase from 2011-12 (averaging 15 in last three years)

In last seven years (2013-2020), CSU transfer has tripled for CS (mid-20s last 2 years). Computer Engineering has been consistently small (2-3). Most common transfer for Computer

Engineering is SDSU and CSULB, for CS overwhelmingly transferring to CSUSM (77% overall last 10 years, 63% in 2017-18, and 85% in 2018-19).

Club Attendance/Activities

No data available on equity gaps in student success or access to services identified, but efforts are described below.

Like many STEM fields, CS is a challenging and rigorous subject area that demands much from its students with often little support inside and outside of the classroom. Luckily, our department has a history of commitment to supporting our students in various ways:

- CS academic support began as CS Lab Aides, library hub computer lab aides that would have a dual role as a CS drop-in tutor that was graciously funded by AIS. We started with 3 lab aides each semester with 15 hours/week coverage that grew to 5 lab aides at 25 hours/week (including Saturdays) for almost a decade. In 2017-2018 with collaboration and funding through TASC, we also had 5 tutors that would take 50-minute appointments each week along with 12 hours/week of drop-in coverage each.
- The STEM Center has graciously taken over the CS tutoring and amplified the coverage, providing drop-in coverage for nearly every hour that the Library/STEM Center is open with 13 tutors covering all of our CS courses currently offered. There is also an option of a 25-minute appointment that students can schedule, along with a part-time learning coach to support the current CS tutors. Because of budget changes, we have lost the CS Lab Aides and TASC tutor support, but are covered graciously by the STEM center.
- Growing this support is of high concern, as tutoring and homework help are essential for succeeding in CS courses and the STEM center has budget, space, and staff limitations that not only impact CS but the other STEM disciplines as well. In an effort to supplement the STEM Center academic support, our department submitted a 2018-19 Plan form entitled "CS Instructional Assistant - Supporting CS tutors in the STEM Center" that expands and addresses the issues above in depth (see PDF attachment with the same name for more details).
- CS department has engaged in discussions with several counseling and student support service colleagues in how to better support students. Ensuring our main (transfer, certificate, AA) courses are available in the evenings/once-a-week format is crucial to supporting part-time students. We will make sure this scheduling happens as we add sections in the coming years. We will also plan on meeting more formally with the Counseling department to strategize on the best way to advise students to enroll in the best course that meets their needs (for example, if they have little to no programming experience and are able to, enrolling in a twice-a-week course rather than once-a-week)
- Supporting student clubs by connecting them with local industry partners (Cisco), past students who have transferred and/or work locally in the field, mentorship, and general advising as each club's leadership plans based on the students' needs/interests.
- Current full-time faculty have continued engaging students outside of the classroom by participating in hackathons like CSUSM's Women's Hackathon and competing in programming contests like ACM's International Collegiate Programming Contest (ICPC) SoCal Regional Contest
- Through the Center for Career Studies & Services, CS faculty have served as internship mentors for several students over the year. Recently, faculty have served as supervisors for internships related to the department, with interns in Spring 2018 and Fall 2018

helping develop CS220 projects, integrating industry standard tools into CS113, and creating a video interviewing CS students for the departments webpage to highlight the reality of their experience (including their identities as women and people of color). The department has paused these efforts, as these internships have been unpaid and strongly believes in paying students for their time and efforts especially when it comes to those in DI groups. Through grant and Strong Workforce Program (SWP) proposals, we hope to grow this as a formal part of our department and program

- Outreach efforts continue through the STREAM festival, Girl Tech Conference and Expo, and Encuentros conference. In the past, it was spearheaded by one faculty member but has now been taken on by the supported student clubs in collaboration with the department
- In Spring 2019, multiple CS faculty were able to then support more outreach events like tabling United Black Student Conference (UBSC) and Black Resource Fair, as well as hosting a programming workshop at Fale Fono for Mana
- Our program is one of the very few community college programs in the county that has a robust transfer pathway, offering several courses that articulate to competitive CS programs in the state (UC Berkeley, UCLA, Cal Poly Pomona, etc.). We are proud of this pathway and the 15+ years of work that has provided so many transfer opportunities to our students
- Through SWP Fall 2020 funds, the department has begun exploring how to best create a CE pathway for students who are interested in working with a certificate/AA from our program. By using the funds to enrich our CS134 (Mobile App Development), CS113, and CS220 courses, these advanced offerings that are part of the certificate/AA provide industry standard tool experience to better prepare our students in programming jobs. The department is currently building its advisory board, seeking equity-minded local businesses, industry colleagues, non-profits, and advocacy groups to advise us as we grow this pathway
- Outreach efforts have slowly grown within the department, but the change needed to truly engage the community we serve in an equitable way requires a cultural competence that the college and department must continue to foster. Thus, a strong focus has been in the works the past two years to thoughtfully and intentionally engage CS faculty in growing our collective cultural competence.
- Starting in Spring 2018, hand-picked CS students were asked to attend department meetings to integrate them into the culture shift as well. These students were intentionally picked based on their leadership and engagement in out-of-class activities. Over the current 2018-2019 academic year, this has grown and been formalized into inviting supported club presidents (WiCS, EChALE STEM, CS club), Supplemental Instructor (SI) leads, STEM Center Learning Coach, and CS student interns. Discussions around success/retention data, equity gaps, and cultural competency have begun laying the foundation for future, richer, deeper discussions.

By beginning a department cultural shift, empowering associate faculty to experiment and innovate in their classes, supporting them in research-based practices (i.e., active learning, culturally-responsive pedagogy, etc.) we are revolutionization of our curriculum. In particular, our introductory CS111 and CS112 courses that are our primary gatekeeping courses to advanced CS courses, degrees, and transfer.

Academic Support

Out-of-classroom support/activities

Engaging MiraCosta Community

Creating Pipelines

Shifting Department Culture

Curriculum

Supporting student success in general:

We will be working on expanding our support of the Academic Success and Equity (ASE) programs by providing consistent workshops each semester. Furthermore, we strongly believe that everything we do as a department must consistently center equity-minded practices. Much of the actions and plans above do this, as we know that such practices not only benefit DI groups but all students (“Teaching Men of Color in the Community College”, Wood, Harris, White). Apart from the practices and ideas described above, the department has proposed plans like a budget augmentation, instructional assistant position, SWP proposal, California Learning Lab grant proposal, and new full-time faculty request that specifically address the equity gaps in our department.

Rather than reiterate those plans, we’d like to expand on another way to address closing the equity gap that can benefit students beyond our department by thoughtfully integrating support for EChALE STEM into our departments/programs to provide support in various forms outside of the classroom. The club includes and encourages academic advising, tutoring, study hours, social activities, industry panels, self-care, and community service that further encourages Chicana/Latina students in STEM, all with a culturally responsive lens. By providing a tangible and visible connection of the student’s identity to STEM, we are lifting barriers to their success by creating a support network of validation and empowerment akin to Laura Rendon’s Sentipensante pedagogy.

Due to limitations of the club being recently founded and lack of institutional integration, we do not have data to prove course completion rates, retention rates, course grade distributions, degree and certificates awarded, transfers, and other assessments of course-based student learning outcomes. However, the faculty advisors have many anecdotal experiences of how it has impacted their classes and office hour participation. That includes, but is not limited to, non-CS EChALE students taking CS courses to explore the field, a large increase of office hour attendance by EChALE students in both Math and CS courses, and routine feedback from students each semester about the impact the club has made. For example, a student shared with one of the advisors this semester, in a reply to an EChALE event invitation, “I always think about this in almost every class session. Its awesome and inspiring to have a Latino professor such as yourself. You’ve been only the second Latino professor I’ve had in all my classes and its still new and such a nice refreshing thing to hear you use examples of Latino foods, items, and such in lectures. 100% going to the fundraiser on Thursday I just had to share that thought with you.” We’ve also seen a diversity of majors attending the club, both from the students and faculty presenters. This has served to show the interdisciplinary nature of our fields, centering collectivism over individualism. Through that, we not only have members in Sociology, Letters,

etc. (traditionally thought of as not having a strong space in STEM) but also leadership positions filled by students in those majors. We see this as a testament of the transformative power that happens when creating a space that centers the Chicana/Latina identity, creating living examples of what we value in a liberal arts education: well-rounded, socially skilled, empathetic, critically thinking self-learners.

Upon looking through the "Progression through Computer Science Curriculum - 2-20-2018.docx" document, one can see the challenges that our department faces in success and retention very boldly. Over the 14-year look at data, we are beginning to have a snapshot of the bigger picture.

Once students persist through CS111 (Attempt CS112), 78% complete CS112

Once students persist through CS112 (Attempted CS113), 62% attempt CS113 (close to CS111 to CS112 drop off)

For the students that reach CS113 (Attempt CS113), 78% complete the course

What we observed in our analysis is that we have a steep drop-off from completing CS111 to attempting CS112 (57%) that must be explored further (could be a combination of low success rate and non-major students who take CS111).

However, for students that we would consider a CS or related major (attempt CS112 and/or CS113, advanced courses), the success is higher in CS112

When the data is further analyzed, similar trends emerge but with some additional context:

The trends are that those that persist to courses after CS111 and attempt them have a 78% probability of completing the course.

The issue is that when we look at the number of students of color, female students, intersections of race/ethnicity and gender, there are so few of those students that get past the gatekeeper CS111 course.

The new hire focusing on these advanced courses will not only address these equity gaps and success rates, but the long-term strategy of the departments work in CS101 and CS111 to address equity gaps may cause a large influx of students to persist to the advanced courses. We would like those advanced courses to be ready to welcome those students, while also improving the current completion rates.

Area 3: Leadership:

1. Yes, long standing CS full-time faculty member, June Porto, retired in December 2019 and this hire request is intended as a replacement.
2. We have continued to encourage associate faculty to step into leadership roles, with full-time faculty providing additional mentorship and professional development support. However, most associates either work full-time in industry or teach at other

campuses, reducing departmental commitment as well as out-of-class contact hours with students who have routinely identified the need in evaluations. But on top of the mentoring, leadership, and teaching loads, full-time faculty also serve as mentors and internship supervisors, participate in supplemental instruction, train tutors for the STEM Center, serve in various forms of institutional service, act as coaches for coding competitions, and serve as advisors for all three clubs mentioned above (note that a club advisor must be present for ANY club activities). A new full-time hire would continue to alleviate the load that full-time faculty carry, as well as provide another leader and role-model for our current and future associate faculty. Lack of capable faculty, as well as competitive salaries in the industry, has led to our department taking a risk on faculty we maybe shouldn't have. Those risks have not only negatively impacted our success rates, but have undoubtedly turned away many students from CS. Failing students in this way does not align with our department's collective vision, it hurts our department's reputation, and ultimately MiraCosta's institutional goals. But the incredibly high need will continue to push us to either compromise our integrity by keeping ill-equipped faculty to keep a section or continually request more full-time hires in our hyper-competitive industry. In addition, the need for all of our faculty to be culturally competent and see our underserved and minoritized students equitably requires meaningful and intentional actions from faculty, requiring even more thoughtful actions from full-time leadership that require time and energy that competes with the above-mentioned activities. A new-hire would also aid in future departmental endeavors, such as creating formal relationships with our ACE programs (Umoja, Mana, and Puente).

3. Continue building curriculum and industry partnerships for the Software Engineering course, which was first delivered in fall 2021, oversee growth of course sections and mentor associates in teaching course. Similar plans for current courses like CS113 and CS220
4. Our department has always relied heavily on associate faculty to teach all of our courses, FTEF taught by associates in 2017-2018 was 85%, 2018-19 at 77.5%. Although the data is not available for 2020-21, with our latest hire, a fourth-full timer would increment bring our FTEF down to 55%. However, this will be short lived because next semester we will open 5 additional sections (with two faculty working overload and two tenure-track). As far as relying on associates to provide key courses or services, we currently offer one fully online course that has been taught by associate faculty only. This semester we grew to two sections, still taught by associates only. The success and retention for those courses, like many online courses at our college, is very low (50s) and could use a full-time faculty to put time and focus on to grow a demand students have been making for a very long time: more online courses.
5. A new full-time hire would continue to alleviate the load that full-time faculty carry, as well as provide another leader and role-model for our current and future associate faculty. Lack of capable faculty, as well as competitive salaries in the industry, has led to our department taking a risk on faculty we maybe shouldn't have. Those risks have not only negatively impacted our success rates, but have undoubtedly turned away many students from CS. Failing students in this way does not align with our department's collective vision, it hurts our department's reputation, and ultimately MiraCosta's institutional goals. But the incredibly high need will continue to push us to either compromise our integrity by keeping ill-equipped faculty to keep a section or continually request more full-time hires in our hyper-competitive industry. In addition, the need for all of our faculty to be culturally competent and see our underserved and minoritized students equitably requires meaningful and intentional actions from faculty, requiring even more thoughtful actions from full-time leadership that require time and energy that competes with the above-mentioned activities. A new-hire would also aid

in future departmental endeavors, such as creating formal relationships with our ACE programs (Umoja, Mana, and Puente).

Area 4: Campus Impact and External Factors :

1. Our department has a strong transfer reputation, annually transferring students to CSUSM, SDSU, UCSD, UCI, and UC Berkeley, among many other universities. Dr. Youwen Ouyang, former department chair of CSUSM, has routinely stated how our students are very well prepared, usually more than their students that started at CSUSM. Our department would like to continue that legacy by increasing access to historically underserved communities in our discipline (women, people of color, people with disabilities), as well as better preparing our students for industry after they transfer and graduate by providing opportunities like certifications, internships, and hands-on experience with industry-standard tools and practices. Also, with their focus on capstone courses like Software Engineering and CS113, they could focus on interdisciplinary collaborations with Service Learning/CSIT/MAT departments to capture the reality of what our students will see in the industry (rather than an isolated mono-culture of education).
2. None
3. According to Strong Workforce Program (SWP) labor market information from 2015, the local total demand for software developers and computer programmers is 1083 with a total supply of 112. By creating a software engineering course and program, we can work on creating a workforce for the 90% demand-supply gap. This semester, we have been working with Zhenya Lindstrom, Associate Dean of Career Education, in becoming a Level Two Preferred Provider through Advancing San Diego, essentially creating a pipeline for internships in our department. By providing them feedback on what were requirements/preferences of skills our courses and programs could fill, we have laid the groundwork for a strong collaboration. Having a full-time faculty lead these efforts, rather than tag-teaming between whomever is currently available, would provide a higher quality collaboration as long as open up more possibilities. Since this position entails leading the Software Engineering course development, their work on these SWP efforts would efficiently guide their work in the classroom.

Area 5: Program Quantitative Data:

1. WSCH over the 2017-2020 time period grew by 4.6% and 6.3% over the 2019-2020 period alone. The percentage of FTEF taught by part-time faculty had increased from 57% to 66% in 2019-2020 even with the addition of a full-time instructor. It rose to 85% in 2017-2018 and is at 66% after a third full-timer was hired in 2020. Although the data is not available for 2020-21, with our latest hire from 2019, a fourth-full timer would increment bring our FTEF down to 55%. However, this will be short lived because next semester we will open 5 additional sections (even with two faculty working overload).

2. Since 2011 and through the pandemic, we've maintained our projected growth rate to steadily increase (average of 2 new sections every year). Although there was no plan for growth last year, we added 2 new sections this year right before the start of the fall semester and plan to add 2 additional sections for Spring 2022. Yet these are still conservative actions in growth for various reasons mentioned above, including growing our program intentionally, thoughtfully, and improving the quality while we address our equity gaps to avoid further increasing the gaps. Another faculty focused on equity gaps in a different specialization of our department will serve to be an additional role-model for students and the community at large.

Linked Documents

[MiraCosta - Signed Preferred Provider MOU.PDF](#)

Salary Funding Account Source:

11 Salaries-Academic Instr FT Contract

Amount Requested:

Health Benefits and Retirement System:

Health Benefits Needed

Equipment:

Standard Desktop Computer, Standard Office Furniture, New Office Space (not currently existing)

Equipment Funding - Other:

Equipment Funding - Other - Amount Requested:

GOALS/ACTION PLANS-----

RELATED ITEM LEVEL 1

Building Local Alliances To Establish Local CS Career Pipelines

Program/Unit:

Computer Sciences

Action Plan Objective/Synopsis:

Resources Needed?:

Staffing

Institutional Goals Alignment (current goals):

I. MiraCosta College will provide equitable access, enhance student success and close equity gaps.,II.
MiraCosta College will meet identified external community needs.

Steps and Timeline for Implementation:

AY 2019-20:

- If instructional assistant hired, train and establish a formal pipeline for a local undergraduate student to graduate school and SDICCCA program. Otherwise, re-apply and request position.
- Apply for SWP funds to pay student internships related to teaching.
- Build diverse department advisory board, solicit local industry internships.
- Spring 2020 CE Industry Advisory board meeting, discussing our certificate and AA degrees to update them for local entry-level programming positions and internships.

AY 2020-21:

- Continue to apply for SWP funds to grow the number of student interns.
- Continue instructional assistant training/request.
- Continue building the advisory board to include local schools teaching CS and non-profits around CS education.
- Spring 2021CE Industry Advisory board meeting, update certificate/AA degree changes.

AY 2021-22:

- Apply for CAHSI.
- Continue to apply for SWP funds to grow the number of student interns.
- Outreach to SDICCCA program to encourage more CS graduate interns.

Linked Documents

[AdvancingSanDiego_DemandForSoftwareTalent.pdf](#)

RELATED ITEM LEVEL 2

Building Local Alliances To Establish Local CS Career Pipelines

Program/ Unit Goal Number:

Program/Unit:

Computer Sciences

Goal Description:

Program Review Motivation Summary:

Measuring Goal Success:

RELATED ITEM LEVEL 2

Creating Multiple Pathways For CS Student Career Exploration

Program/ Unit Goal Number:

Program/Unit:

Computer Sciences

Goal Description:**Program Review Motivation Summary:**

Local labor market information (Strong Workforce Program metrics 2015-16) shows that for Software Developer/Programmers, the total supply of 112 does not meet the total demand of 1083. According to the US Department of Labor's Bureau of Labor Statistics, "Employment of software developers is projected to grow 24 percent from 2016 to 2026, much faster than the average for all occupations [7 percent]. Employment of applications developers is projected to grow 31 percent, and employment of systems developers is projected to grow 11 percent. The main reason for the growth in both applications developers and systems developers is a large increase in the demand for computer software." (<https://www.bls.gov/ooh/computer-and-information-technology/software-developers.htm>) "Computer science students on a number of campuses complain that their departments can't meet demand. Their professors are also stressed. But experts say there is no clear fix for nationwide shortage of computer science faculty." <https://www.insidehighered.com/news/2018/05/09/no-clear-solution-nationwide-shortage-computer-science-professors> "It's understandable that talented faculty would want to follow the money, but the net effect on the tech talent pipeline is like a farmer eating his seed corn, as today's meal comes at the expense of next year's harvest. Fewer talented teachers could potentially constrict the flow of talent to the nation's tech firms." <https://insights.dice.com/2018/04/30/tech-industry-really-needs-professors-teaching-talent/>

Program Performance:

- From 2011 to 2018, CSU transfer has tripled for CS (mid-20s last 2 years). Computer Engineering has been consistently small (2-3). Most common transfer for Computer Engineering is SDSU and CSULB, for CS overwhelmingly transferring to CSUSM (77% overall last 10 years, 63% in 2017-18, and 85% in 2016-17).
- Number of degrees, certificates, and diplomas awarded has held to consistent levels since increase from 2011-12 (averaging 19.5 annually in last four years)
- 5+ STEM Center Tutors, 2 Supplemental Instruction leaders, and 3 student interns (through Career Services) in the past two years that have personally indicated an interest in teaching computer science as a career goal.
- EChALE STEM Club: highest attended events in AY 2018-19 were the Industry Panel and Faculty Panel.
- WiCS Club: highest attended events in AY 2018-19 were the Industry Panel with Cisco, Industry talk with Google, and Interview Prep panel/workshop (Cisco, Cubic, Google).
- CS Club: the highest attended event in AY 2018-19 was the GitHub workshop (industry-standard tool).

In regards to creating pipelines:

Our program is one of the very few community college programs in the county that has a robust transfer pathway, offering several courses that articulate to competitive CS programs in the state (UC Berkeley, UCLA, Cal Poly Pomona, etc.). We are proud of this pathway and the 15+ years of work that has provided so many transfer opportunities to our students.

Through SWP Fall 2018 funds, the department has begun exploring how to best create a CE pathway for students who are interested in working with a certificate/AA from our program. By using the funds to enrich our CS134 (Mobile App Development), CS113, and CS220 courses, these advanced offerings that are part of the certificate/AA provide industry standard tool experience to better prepare our students in programming jobs. The department continues to build its advisory board, seeking equity-minded local businesses, industry colleagues, non-profits, and advocacy groups to advise us as we grow this pathway.

A shortage of CS educators in our country highlights another possible pathway to prepare our students for 21st century careers. Several students, including student interns, have indicated an interest in teaching CS at some level. With the SDICCA program and several reputable Master of CS programs in the area, the department is working on creating sustainable/institutionalized internships for current students to provide initial exposure to CS teaching careers and opportunities for local undergraduates to work in teaching-related positions like instructional aides/assistants (see attached "CS Instructional Assistant - Supporting CS tutors in the STEM Center" document) to build a bridge between current CS students to the SDICCA program. In this way, MiraCosta can be cultivating the next generation of CS educators for our college and the nation.

Measuring Goal Success:

Collecting quantitative and qualitative data on the opportunities offered through or in conjunction with MCC for each of our academic and career pathways: transfer, CE, and teaching. For example, offerings of paid internships, supplemental instructors, instructional aides, etc.

Growth and diversity of equity-minded advisory board (local industry, K-12 education, college/university).

Changes to program certificate/degrees based on advisory board feedback.

RELATED ITEM LEVEL 2

Hire Replacement Computer Science Faculty

Program/ Unit Goal Number:

Program/Unit:

Computer Sciences

Goal Description:

In December 2019, longtime Computer Science full-time faculty member, June Porto, retired. Hiring a replacement, full-time Computer Science faculty to accommodate our current student population, burgeoning demand for a recession and pandemic resilient career path and leadership for our ongoing efforts to recruit, retain and succeed with students of underserved and under-represented populations.

Program Review Motivation Summary:

A new full-time hire is absolutely necessary to replace the full-time load maintained by recently retired CS faculty member, June Porto, in December 2019. Furthermore, a new hire would provide another leader and role-model for our current and future associate faculty. Lack of capable faculty, as well as competitive salaries in the industry, has led to our department taking a risk on faculty we maybe shouldn't have. Those risks have not only negatively impacted our success rates, but have undoubtedly turned away many students from CS. Failing students in this way does not align with our department's collective vision, it hurts our department's reputation, and ultimately MiraCosta's institutional goals. But the incredibly high need will continue to push us to either compromise our integrity by keeping ill-equipped faculty to keep a section or continually request more full-time hires in our hyper-competitive industry. In addition, the need for all of our faculty to be culturally competent and see our underserved and minoritized students equitably requires meaningful and intentional actions from faculty, requiring even more thoughtful actions from full-time leadership that require time and energy that competes with the above-mentioned activities. A new-hire would also aid in future departmental endeavors, such as creating formal relationships with our ACE programs (Umoja, Mana, and Puente).

WSCH for 2015 -2016 grew by 20.3% and 106% over the 2011-2020 time period. In the 2016-2020 time period, it grew an additional 13%. Overall the CS department WSCH was 4,891 in 2017-2018 with a WSCH/FTEF at 367 for the same year. The percentage of FTEF taught by part-time faculty had increased from 57% to 66% in 2015-2016 even with the addition of a second full-time instructor four years ago. It rose to 85% in 2017-2018. After a third full-time hire, the rate decreased to 59.1% in 2018-2019 but is now approaching 70% again as the number of sections continues to grow.

Hiring a new full-time colleague to take lead to specifically address equity issues in our gatekeeper introductory courses would allow senior faculty to not only participate in those efforts with associates but to especially focus on programs and services to better serve our students. For example, we could prioritize new course offerings that we have not been able to thus far, like a course in embedded systems, databases, or other student requested and high industry demand classes. We could focus on interdisciplinary collaborations with CSIT/MAT departments to create new degrees that capture the reality of what our students will see in the industry (rather than an isolated mono-culture of education). We could also further explore interdisciplinary learning communities with English, Sociology, and other fields that are not traditionally identified in such collaborations but bring a deeper meta-cognitive and social impact not often seen in CS courses. In addition, we could create customized workshops with the

Counseling department (i.e., CS Anxiety Workshop) and Career Services (i.e., CS resume + interview workshops led by local industry partners).

Measuring Goal Success:

In the short term, success will be measured by hiring an additional Computer Science faculty member within the allotted time-frame.

In the long term, success will be measured through improvement in metrics such as enrollment, retention and student success.

GOALS/ACTION PLANS-----

RELATED ITEM LEVEL 1

Echándole Ganas: Supporting Student Communities To Support Student Success

Program/Unit:

Computer Sciences

Action Plan Objective/Synopsis:

Resources Needed?:

Staffing

Institutional Goals Alignment (current goals):

I. MiraCosta College will provide equitable access, enhance student success and close equity gaps.

Steps and Timeline for Implementation:

Building department-level connections to ASE programs:

- Spring 2019 created and delivered a culturally-responsive workshop on how to program a robot through a maze for Mana's Fale Fono to engage the Native Hawaiian/Pacific Islander community.
- Fall 2019, Spring 2020, and Fall 2020 expand to a new workshop for each of the remaining ASE programs (Umoja, Puente, and RAFFY).
- Each semester, continue to deliver existing workshops (e.g. Fall 2019 two workshops, Spring 2020 three workshops) with the goal of Fall 2020 being the first semester where all four programs are supported.
- After delivering a full year of a workshop for each of the ASE programs (2020-21), coordinating with Student Equity to offer CS101 as an ASE-only cohort course in Fall 2021 and Spring 2022.

Supporting student clubs:

- Continue to mentor and advise EChALE STEM, WiCS, and CS Clubs with a minimum of two faculty advisors (at least one of which is from our department)

- Specifically, for EChALE STEM, there is a need to support our Chicanx/Latinx students that as a department in a Hispanic-Serving Institution we feel must grow into a full-fledged MESA program
 - AY 2019-20: Gathering funds to support EChALE events (Financial commitment from department funds each semester/year, pursuing grants through the Foundation office, community donations, etc.)
 - AY 2020-21: Intentionally growing formal support from the existing 4 advisors (Math (2), CS, Biology) to a larger group of MiraCosta employees: Physical Sciences (Chemistry, Physics, etc.), Social Sciences (Sociology, Psychology, etc.), Humanities (Letters, History, etc.), Staff in ASE programs (Puente, Umoja, Mana, Raffy)
 - AY 2021-22: Prepare application and submit for MESA program

RELATED ITEM LEVEL 2

Echándole Ganas: Creating Bridges and Strengthening Student Community Infrastructure

Program/ Unit Goal Number:

Program/Unit:

Computer Sciences

Goal Description:

Program Review Motivation Summary:

Program Performance:

- Student success by demographic group:
 -
 -
 - Using the Equity Index defined in MiraCosta's Student Equity Plan, the groups in CS that may be disproportionately impacted are as follows:
 -
 - Over the past eight years (2011-2019), the overall success rate was 60.7%
 -
 -
 - The lowest three Equity Indexes (by race/ethnicity):
 -
 -
 - Pacific Islander: Success Rate 19.0%, Equity Index 0.314
 -
 - Black/African-American: Success Rate 42.3%, Equity Index 0.697
 -
 - Hispanic: Success Rate 51.2%, Equity Index 0.843
 -
 -
 -

- The lowest three Equity Indexes (by age):
 -
 -
 - 65+: Success Rate 40.0%, Equity Index 0.659
 -
 - 40-44: Success Rate 48.8%, Equity Index 0.803
 -
 - 21-24: Success Rate 56.0%, Equity Index 0.923
 -
-
-
- The lowest by gender:
 -
 -
 - Unknown/Decline/Non-binary: Success rate 53.8%
 -
 - Male and Female are relatively equal with 60.6% and 61.1% respectively.
 -
-
-
- The lowest five Equity Indexes (intersecting race/ethnicity with gender, excluding N-size less than 5):
 -
 -
 - Pacific Islander Male: Success Rate 7.7%, Equity Index 0.127
 -
 - Pacific Islander Female: Success Rate 37.5%, Equity Index 0.632
 -
 - Black/African-American Male: Success Rate 40.9%, Equity Index 0.675
 -
 - Unknown race/ethnicity Female: Success Rate 46.7%, Equity Index 0.774
 -
 - Hispanic Female: Success Rate 48.5%, Equity Index 0.804
 -
-
-
-
-
- Overall rise of attendance and growth of student club events (both in quantity and quality) over the past two years.
-
-

Program Unit/Goal Development:

Aligns with overall department vision of addressing equity-gap intentionally, centering student voices in the discussions, problem solving, and implementations.

Measuring Goal Success:

Measure number of events department supports for ASE programs, and continuously evaluate the progress of institution supporting and building a MESA program.

Continue to collect data, both quantitative (RPIE, student club attendance, number of events department supports, etc.) and qualitative (collecting student stories and experiences, both through written and video narratives).

RELATED ITEM LEVEL 2

Hire Replacement Computer Science Faculty

Program/ Unit Goal Number:

Program/Unit:

Computer Sciences

Goal Description:

In December 2019, longtime Computer Science full-time faculty member, June Porto, retired. Hiring a replacement, full-time Computer Science faculty to accommodate our current student population, burgeoning demand for a recession and pandemic resilient career path and leadership for our ongoing efforts to recruit, retain and succeed with students of underserved and under-represented populations.

Program Review Motivation Summary:

A new full-time hire is absolutely necessary to replace the full-time load maintained by recently retired CS faculty member, June Porto, in December 2019. Furthermore, a new hire would provide another leader and role-model for our current and future associate faculty. Lack of capable faculty, as well as competitive salaries in the industry, has led to our department taking a risk on faculty we maybe shouldn't have. Those risks have not only negatively impacted our success rates, but have undoubtedly turned away many students from CS. Failing students in this way does not align with our department's collective vision, it hurts our department's reputation, and ultimately MiraCosta's institutional goals. But the incredibly high need will continue to push us to either compromise our integrity by keeping ill-equipped faculty to keep a section or continually request more full-time hires in our hyper-competitive industry. In addition, the need for all of our faculty to be culturally competent and see our underserved and minoritized students equitably requires meaningful and intentional actions from faculty, requiring even more thoughtful actions from full-time leadership that require time and energy that competes with the above-mentioned activities. A new-hire would also aid in future departmental

endeavors, such as creating formal relationships with our ACE programs (Umoja, Mana, and Puente).

WSCH for 2015 -2016 grew by 20.3% and 106% over the 2011-2020 time period. In the 2016-2020 time period, it grew an additional 13%. Overall the CS department WSCH was 4,891 in 2017-2018 with a WSCH/FTEF at 367 for the same year. The percentage of FTEF taught by part-time faculty had increased from 57% to 66% in 2015-2016 even with the addition of a second full-time instructor four years ago. It rose to 85% in 2017-2018. After a third full-time hire, the rate decreased to 59.1% in 2018-2019 but is now approaching 70% again as the number of sections continues to grow.

Hiring a new full-time colleague to take lead to specifically address equity issues in our gatekeeper introductory courses would allow senior faculty to not only participate in those efforts with associates but to especially focus on programs and services to better serve our students. For example, we could prioritize new course offerings that we have not been able to thus far, like a course in embedded systems, databases, or other student requested and high industry demand classes. We could focus on interdisciplinary collaborations with CSIT/MAT departments to create new degrees that capture the reality of what our students will see in the industry (rather than an isolated mono-culture of education). We could also further explore interdisciplinary learning communities with English, Sociology, and other fields that are not traditionally identified in such collaborations but bring a deeper meta-cognitive and social impact not often seen in CS courses. In addition, we could create customized workshops with the Counseling department (i.e., CS Anxiety Workshop) and Career Services (i.e., CS resume + interview workshops led by local industry partners).

Measuring Goal Success:

In the short term, success will be measured by hiring an additional Computer Science faculty member within the allotted time-frame.

In the long term, success will be measured through improvement in metrics such as enrollment, retention and student success.

GOALS/ACTION PLANS-----

RELATED ITEM LEVEL 1

Sawubona: Upgrading CS111 to Recognize, Validate, and Empower Marginalized Students

Program/Unit:

Computer Sciences

Action Plan Objective/Synopsis:

Resources Needed?:

Institutional Goals Alignment (current goals):

Steps and Timeline for Implementation:

AY 2019-20:

- Skill map development and refinement, module development.

AY 2020-21:

- Skill map development and refinement, pilot testing, implementation of faculty learning community.
- Begin module development for CS112.

AY 2021-22:

- Evaluate and iterate pilot test, begin pilot testing CS112

Linked Documents

[Progression through Computer Science Curriculum - 2-20-2018.docx](#)

RELATED ITEM LEVEL 2

Hire Replacement Computer Science Faculty

Program/ Unit Goal Number:

Program/Unit:

Computer Sciences

Goal Description:

In December 2019, longtime Computer Science full-time faculty member, June Porto, retired. Hiring a replacement, full-time Computer Science faculty to accommodate our current student population, burgeoning demand for a recession and pandemic resilient career path and leadership for our ongoing efforts to recruit, retain and succeed with students of underserved and under-represented populations.

Program Review Motivation Summary:

A new full-time hire is absolutely necessary to replace the full-time load maintained by recently retired CS faculty member, June Porto, in December 2019. Furthermore, a new hire would provide another leader and role-model for our current and future associate faculty. Lack of capable faculty, as well as competitive salaries in the industry, has led to our department taking a risk on faculty we maybe shouldn't have. Those risks have not only negatively impacted our success rates, but have undoubtedly turned away many students from CS. Failing students in this way does not align with our department's collective vision, it hurts our department's reputation, and ultimately MiraCosta's

institutional goals. But the incredibly high need will continue to push us to either compromise our integrity by keeping ill-equipped faculty to keep a section or continually request more full-time hires in our hyper-competitive industry. In addition, the need for all of our faculty to be culturally competent and see our underserved and minoritized students equitably requires meaningful and intentional actions from faculty, requiring even more thoughtful actions from full-time leadership that require time and energy that competes with the above-mentioned activities. A new-hire would also aid in future departmental endeavors, such as creating formal relationships with our ACE programs (Umoja, Mana, and Puente).

WSCH for 2015 -2016 grew by 20.3% and 106% over the 2011-2020 time period. In the 2016-2020 time period, it grew an additional 13%. Overall the CS department WSCH was 4,891 in 2017-2018 with a WSCH/FTEF at 367 for the same year. The percentage of FTEF taught by part-time faculty had increased from 57% to 66% in 2015-2016 even with the addition of a second full-time instructor four years ago. It rose to 85% in 2017-2018. After a third full-time hire, the rate decreased to 59.1% in 2018-2019 but is now approaching 70% again as the number of sections continues to grow.

Hiring a new full-time colleague to take lead to specifically address equity issues in our gatekeeper introductory courses would allow senior faculty to not only participate in those efforts with associates but to especially focus on programs and services to better serve our students. For example, we could prioritize new course offerings that we have not been able to thus far, like a course in embedded systems, databases, or other student requested and high industry demand classes. We could focus on interdisciplinary collaborations with CSIT/MAT departments to create new degrees that capture the reality of what our students will see in the industry (rather than an isolated mono-culture of education). We could also further explore interdisciplinary learning communities with English, Sociology, and other fields that are not traditionally identified in such collaborations but bring a deeper meta-cognitive and social impact not often seen in CS courses. In addition, we could create customized workshops with the Counseling department (i.e., CS Anxiety Workshop) and Career Services (i.e., CS resume + interview workshops led by local industry partners).

Measuring Goal Success:

In the short term, success will be measured by hiring an additional Computer Science faculty member within the allotted time-frame.

In the long term, success will be measured through improvement in metrics such as enrollment, retention and student success.

RELATED ITEM LEVEL 2

Sawubona: Centering Marginalized Students in CS111 Revitalization

Program/ Unit Goal Number:

Program/Unit:

Computer Sciences

Goal Description:

Program Review Motivation Summary:

Program Performance:

- Student success by demographic group:
 -
 -
 - The lowest three Equity Indexes (by race/ethnicity):
 -
 - Pacific Islander: Success Rate 19.0%, Equity Index 0.314
 -
 - Black/African-American: Success Rate 42.3%, Equity Index 0.697
 -
 - Hispanic: Success Rate 51.2%, Equity Index 0.843
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 - The lowest three Equity Indexes (by age):
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 - 40-44: Success Rate 48.8%, Equity Index 0.803
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 - The lowest by gender:
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 - Unknown/Decline/Non-binary: Success rate 53.8%
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 - Male and Female are relatively equal with 60.6% and 61.1% respectively.
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 -
 - The lowest five Equity Indexes (intersecting race/ethnicity with gender, excluding N-size less than 5):
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 - Pacific Islander Male: Success Rate 7.7%, Equity Index 0.127
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 - Pacific Islander Female: Success Rate 37.5%, Equity Index 0.632
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- Black/African-American Male: Success Rate 40.9%, Equity Index 0.675
 -
 - Unknown race/ethnicity Female: Success Rate 46.7%, Equity Index 0.774
 -
 - Hispanic Female: Success Rate 48.5%, Equity Index 0.804
 -
- - Using the Equity Index defined in MiraCosta's Student Equity Plan, the groups in CS that may be disproportionately impacted are as follows:
 - Over the past eight years (2011-2019), the overall success rate was 60.7%
- Grade distribution by course over the past three years (2016-2019):
 -
 -
 - The courses with the highest average withdraw rates (W) were CS107 (Intro to Object-Oriented Programming) and CS111 (Intro to Computer Science I: Java).
 -
 - CS107 has been phased out of the program but CS111 has high articulation demands and is the course we offer the most sections of.
 -
-
- Progression through CS curriculum from Fall 2003 to Fall 2017
 - Out of all students who initially started CS111, 60.8% completed the course. Of those that completed CS111, 57% attempted CS112. These are the steepest dropoffs in the data provided by RPIE.
 - Similar DI data/trends that were shared in the overall Program Progress area exists within this longer view of the CS111 data.
- The number of course sections per academic year has more than doubled from 17 in 2011-2012 to 40 in 2017-2018, the growth has not been as steep the last couple of years due to lack of associate faculty and CS111 success rates. However, with our recent new full-time hires and consistent associate faculty, the most recent barrier to growth has been the restriction of section growth by the college. For example, in the Fall 2019 schedule, the department was ready to add 3 new sections of our most demanded and advanced courses (CS112, CS113, and CS220) despite low CS111 success rates.
- Course Learning Outcomes:
 - Much of the student feedback we receive that indicates areas of improvement is related to CS111, specifically about the lack of engagement in the classroom from instructors, heavy lecture-based classes, and need for further support.

Program Unit/Goal Development:

- Aligns with overall department vision of addressing equity-gap intentionally, centering student voices in the discussions, problem-solving, and implementations.

Measuring Goal Success:

Completion of CS111 curriculum centering culturally-sustaining teaching and active learning practices (this includes course book, development tools used, method of project submission, out-of-class studying/reading expectations and material, the online hour of the course, in-class minimalization of lecture to integrate active learning activities, etc.).

Continue to collect data, both quantitative (RPIE, student club attendance, number of events department supports, etc.) and qualitative (collecting student stories and experiences, both through written and video narratives).

Nursing and Allied Health

MSN RN CNE – Department Chair Nursing & Allied Health, LVN Program Director

Program/Unit:

Nursing and Allied Health

Name of Person Completing this Form:

Sue Simpson MSN RN CNE – Department Chair Nursing & Allied Health, LVN Program Director.

Summary Statement of Need:

Due to a late (August 2021) tenure track faculty resignation (who was also the designated and approved through the Department of Health as CNA Program Director) there is need for a full time faculty hire for the Nursing and Allied Health Department with assignment to the CNA program. The Fall 2021 new hire, a justified 2nd full time faculty for the CNA program, currently is the sole full time faculty member assigned to this program. Once again there is a vacancy for a full time faculty in highly popular CNA program.

The latest labor market information retrieved August 22, 2021 from the San Diego-Imperial Labor Market Supply & Demand Analyzer. data demonstrates that demand for CNAs far exceeds supply which reveals an annual need for 1,422 additional qualified people for these jobs. The CNA program can be more effective in meeting industry needs if added sections were offered of this course. In order to offer more sections, as previously justified, two full time faculty members are needed. Clinical instructors are regulated by the California Department of Public Health which requires specific qualifications to teach. And these regulations make it difficult to find qualified faculty. Currently, in light of the surprise resignation, the program has only 1 full time faculty who has just been hired and is not yet prepared to take on the leadership role of CNA director. Once again the program is in the position of only one FT instructor which causes the program to be in a constant state of jeopardy of closure due to the limited number of instructors who are approved to teach in this program