SAN DIEGO MESA COLLEGE

Program Review

Summary and Reflections with Unit Goals, Action Plans, and Updates

Instructional Program - Computer Information Sciences (CISC)

2022 - 2026

Executive Summary

Describe the successes and challenges your unit has faced since the last comprehensive review.

Our department is growing, with high enrollments across the board. However, one of our contract faculty retired at the end of Fall 22, so we are seeking more adjunct instructors to help fill the gap caused by the reduction in contract faculty and the growth of the department. While we have been able to hire adjunct faculty, their available time and dedication to support students and contribute to the department is limited. This puts more workload on the remaining contract faculty who all serve as mentors to the new adjuncts in addition to the necessary out of classroom work that is part of the faculty load. We are requesting more contract faculty positions.

Several of our classes have started utilizing embedded tutors. Faculty report that embedded tutors are able to spend time helping individual students who are struggling, both during class and during tutoring sessions, and have helped students succeed in their classes. We hope to continue having embedded tutors in our classes and to increase the number of classes that utilize embedded tutors.

With the introduction of student SDCCD e-mails, our students now have no-cost access to Office 365 applications, which has helped to reduce costs for students in our CISC 181 classes.

If applicable, describe any major curricular or service changes your unit has engaged in and the impact of those changes since the last comprehensive review.

In partnership with our sister colleges, we have updated the SLOs for many of our courses to ensure that our students are learning skills that are in demand from industry and are also equipped to successfully progress through course sequences. We anticipate that this will help our students to be better positioned to find jobs and internships.

We have been working on new certificates and courses and are currently working on a certificate and additional course related to Agile software development.

In partnership with Multimedia and Web Development, we created a new Certificate of Performance tailored to CCAP students at Point Loma High School. This two year degree (1 class per semester) provides students with 21st century technology skills while providing a broad exploration of topics within ICT.

If applicable, describe the impact of any new resources (human, fiscal, etc) on the unit and/or action plan implementation.

We have not had new resources, but we have unfortunately seen a reduction in contract faculty due to retirement. This has had a negative impact on our department as we have fewer people completing the same amount of work outside of the classroom.

If you assess OUTCOMES, please confirm that the outcomes have been reviewed for accuracy. If you do not assess Outcomes, skip this question.

Reviewed Not Accurate - Update In Progress

Related Documents for Charts and Graphs

Executive Summary Complete

Yes

Summary and Reflection

Data Reflection

Trends observed in program/service area's data.

CISC saw enrollment drops in from Fall 19 (1,037 students) to Fall 20 (935 students), but by Spring 20, enrollments were back to normal Spring levels (948 in Spring 20 to 949 in Spring 21); although Fall enrollment levels didn't reach pre-pandemic amounts Fall 22, the upward trend in fall continued and Spring enrollment trends remained stable with a slight upward trend. Both Fall 22 and Spring 23 enrollment levels are now higher than pre-pandemic; CISC is growing, both in enrollment and in productivity (Fall 19 16.27 -> Fall 22 17.14). The percentage of students with CISC as their academic plan has also increased, from 1.2% (437 students) in 17/18 to 4.1% (1,167 students) in 21/22. The increases that we are seeing are due in part to Associate Degree for Transfer that Mesa now offers in Computer Science, but also because of the relevance of computer and information systems to many jobs available and in demand in industry today.

The number of awards in CISC also dropped during the pandemic but has begun an upward trend in large part due to the introduction of the ADT in Computer Science. Unfortunately, there are equity gaps in who is earning degrees and certificates (see next question). Although the number of CISC awards is growing, the total number of awards is still small. We think this is because our certificates need to be updated, and new certificates need to be created to better reflect industry needs; reviewing and updating this curriculum is one of our goals.

The CISC overall course success rates have increased; in 16/17 and 18/19 the success rate was 63%; it has increased to 68% in 20/21 and 66% in 21/22, for an average of 4% increase. Face to face and hybrid courses have seen a growth in success rates from 71% in 16/17 to 84% in 21/22. Asynchronous online classes have also seen a growth from 58% in 16/17 to 66% in 21/22. We attribute the growth in success rates to faculty participation in professional development that emphasized equitable practices in course policies and in grading.

Describe any equity gaps in the data. Are there differences and/or patterns observed by demographics (e.g.race/ethnicity, gender, age, etc.)

The awards earned in CISC have equity gaps in several areas. In examining the data from 20-22 (starting after the introduction of the ADT), students in the 18-24 age group are at -18.4%; we are hopeful that this is because the ADT is new, and for many students takes more than 2 years to earn. We are interested to see what the data looks like for the 22-23 AY. As we introduce new degrees that are more relevant to industry, we hope that younger students will find the degrees valuable and will earn them.

There is also an equity gap for female students (-34.0%). We know that there is an imbalance of gender in computer science industry that is perpetuated by media stereotypes of computer scientists as white males; unfortunately, this often leads to a loss of interest for women by middle school, and results in lower enrollment in computer science classes. Several ways that we can work around this challenge include offering more CCAP courses in high school, so that girls have the opportunity to take computer science classes before college, and increasing outreach to younger students by offering campus visit days that showcase the rich variety of options in ICT fields.

We noticed an award gap for Latinx students (-13.3%). We are troubled by its existence especially because Mesa is an HSI. In addition to faculty mindfully approaching equitable course policy changes, we are hopeful that we will be successful in our goal to create an ICT community/study space in the BT building, and that this will help our students to better collaborate and to support each other as well as to allow non-ICT students to discover the availability and fun in ICT fields.

There is an equity gap in success between asynchronous online classes and classes with an in-person component (both face-to-face and hybrid). As our success rates have grown, this gap has unfortunately also grown. We are continuing to encourage faculty to participate in professional development, especially when that professional development includes practices for online teaching.

The equity gaps in success rates unfortunately mirror the award gaps. Latinx students have a -9.6% equity gap, and Black/African American students have a -12.1% equity gap. The equity gap by age group is, fortunately, smaller at -2.0% for the 18-24 age group. This is an indication that continuing our professional development

Summary and Reflection

efforts and ICT community/study space creation efforts as approaches to reduce the success rate equity gap will also help with the award equity gap.

Surprisingly, the equity gap by gender shows that female students are more successfully; there is -3.1% equity gap for male students, which indicates that more successful outreach to enroll women in CISC programs is a good solution to reduce the gender award gap.

Describe the discussion(s) that took place about the unit's learning outcomes assessment data.

We noted that many of our CLOs are inaccurate, and some courses do not have CLOs listed. We are addressing these issues so that we will be able to collect appropriate data and examine it in the future.

Related Documents for Charts and Graphs

Data Reflection Complete

Yes

Practice Reflection

Describe current practices your program/service area has engaged in that you believe impact the above data trends and equity gaps.

The CISC department has committed to increasing the diversity of our students. We have taken many approaches to this goal, notably around equity and inclusion.

CISC faculty have participated in a Grading for Equity FIG, and have altered course grading policies to be more equitable. Some faculty have embraced standards-based grading policies; others have adopted smaller changes such as accepting late work without penalty and encouraging revisions to shift student focus from earning a grade to learning the course concepts.

Another FIG that CISC faculty participated in created Canvas pages showcasing computer scientists, with a focus on women and underrepresented ethnicities. We have started integrating these pages into our Canvas courses so that students can “see” themselves as successful computer scientists. We are working on printing posters to put in our classrooms so that our students will literally “see” faces that look like theirs every day in class.

Efforts to increase success rates in online courses are needed as well. Several faculty are improving their online courses based on information they have learned from participating in professional development courses offered by MOST (Refresh, Include, Assess) and by Humanizing Online STEM. We are sharing the changes that we have made, as well as the reasoning behind these changes, at department meetings so that all faculty can benefit.

OER and ZTC has been another focus for our department. Multiple instructors have adopted ZTC materials; in courses where ZTC materials are not readily available, instructors are comparing options from multiple publishers and are choosing the lower cost options.

What other factors (internal or external) might also impact the above data trends and equity gaps?

The pandemic had a major impact on equity. Many factors outside of school affected our students’ ability to complete courses and programs. We have been slowly returning to campus and are saddened that our work to create a student space for ICT students to study and build community within the BT was incomplete despite the fact that we had secured funding for the project. This lack of space to create community will continue to impact our students in the form of decreased retention and success.

The combination of the recent retirement of a contract faculty and the growth that CISC is experiencing has resulted in a need to hire additional adjunct instructors. Because of intentional recruitment efforts, this has increased the diversity of our faculty, which we hope will assist our efforts in increasing the diversity of our students.

Summary and Reflection

Unfortunately, the reduction in the number of contract faculty has made it difficult for us to participate as broadly as we would like to in conversations and efforts across campus, especially in efforts designed to increase student success and retention. Because we have fewer contract faculty, our individual responsibilities have increased, leaving us with less time to spend interacting with individual students.

Related Documents for Charts and Graphs

Practice Reflection Complete

Yes

Mid-Cycle Updates

Are there any edits or updates to the Executive Summary above?

We appreciate the benefits of student SDCCD e-mails, but we have noticed that students are not consistently checking this e-mail address, and so are not getting messages from instructors. This is posing a challenge when instructors need to contact students regarding things like enrollment and progress in the class, especially for online classes.

Are there any edits or updates to the Data Reflection above?

No.

Are there any edits or updates to the Practice Reflection above?

No.

Summary and Reflection

Goal 1: In the next 4 years, increase by 10% the number of students who gain employment at a livable wage or who attain a CISC certificate.

Unit Goal: Goal 1: In the next 4 years (program review cycle), increase by 10% the number of students who gain employment at a livable wage in computer science or a related field, or who see a wage increase by increasing the number of students who attain a certificate in CISC.
Goal Status: Active
Beginning Year: 2022 - 2023
Projected Completion Year: 2025 - 2026
Mapping
Mesa College Strategic Plan: Roadmap to Mesa2030: (X - Highlight the X to Align)

- Completion - Objective 1: X
- Completion - Objective 2: X
- Completion - Objective 3: X
- Completion - Objective 4: X

Action Plans	Action Plan Update
Action Plan Status: Active **Action Plan:** Hire new contract faculty who will primarily teach CTE courses and allow our programs to grow. **Action Plan Cycle:** 2022 - 2023, 2023 - 2024, 2024 - 2025, 2025 - 2026	**Submission Date**: 01/24/2024 **Action Plan Update**: A contract position has been approved and will be filled to start in Fall 2024. **Update Year**: 2023 - 2024 **Action Plan Progress**: On Track
Action Plan Status: Active **Action Plan:** Update curriculum to include specific areas of computer science. Ideas for new areas include data science, artificial intelligence, and cybersecurity; note that the specific area(s) we design curriculum around will be dependent on the advice of our advisory committee, labor market indicator reports from the regions, and the expertise of contract faculty. **Action Plan Cycle:** 2022 - 2023, 2023 - 2024, 2024 - 2025, 2025 - 2026	

Goal 2: In the next 4 years, increase the number of students who attain an ADT in computer science.

Unit Goal: Goal 2: In the next 4 years (program review cycle) increase by 10% the number of students who transfer to a 4-year school in computer science or related majors by increasing the number of students who attain an ADT in computer science.
Goal Status: Active

Summary and Reflection

Beginning Year: 2022 - 2023
Projected Completion Year: 2025 - 2026
Mapping
Mesa College Strategic Plan: Roadmap to Mesa2030: (X - Highlight the X to Align)

- Completion - Objective 1: X
- Completion - Objective 2: X
- Completion - Objective 3: X
- Completion - Objective 4: X
- Pathways and Partnerships - Objective 1: X
- Pathways and Partnerships - Objective 2: X
- Pathways and Partnerships - Objective 3: X
- Pathways and Partnerships - Objective 4: X
- Pathways and Partnerships - Objective 5: X

Action Plans	Action Plan Update
Action Plan Status: Active **Action Plan:** Hire new contract faculty who will primarily teach transfer-pathway courses. **Action Plan Cycle:** 2022 - 2023, 2023 - 2024, 2024 - 2025, 2025 - 2026	**Submission Date**: 01/24/2024 **Action Plan Update**: A contract position has been approved and will be filled to start in Fall 2024. **Update Year**: 2023 - 2024 **Action Plan Progress**: On Track
Action Plan Status: Active **Action Plan:** Assign a "lead" faculty for each transfer-pathway course, who will lead a community of practice to ensure that all courses are taught to the same standard, thus enabling students to successfully proceed through course sequences. **Action Plan Cycle:** 2022 - 2023, 2023 - 2024, 2024 - 2025, 2025 - 2026	

Goal 3: In the next 2 years, revise the curriculum to meet the current industry demands.

Unit Goal: Goal 3: In the next 2 years, revise the curriculum to meet the current industry demands.
Goal Status: Active
Beginning Year: 2022 - 2023
Projected Completion Year: 2024 - 2025
Mapping
Mesa College Strategic Plan: Roadmap to Mesa2030: (X - Highlight the X to Align)

- Scholarship - Objective 1: X
- Scholarship - Objective 2: X

Summary and Reflection

- Scholarship - Objective 3: X
- Scholarship - Objective 4: X
- Scholarship - Objective 5: X

Action Plans	Action Plan Update
Action Plan Status: Active **Action Plan:** Meet with an advisory committee to determine industry needs. **Action Plan Cycle:** 2022 - 2023, 2023 - 2024, 2024 - 2025	**Submission Date**: 01/24/2024 **Action Plan Update**: Advisory Committee met in April 23 and will meet again in Spring 24. **Update Year**: 2023 - 2024 **Action Plan Progress**: On Track
Action Plan Status: Active **Action Plan:** Request LMI reports based on advisory committee recommendations. **Action Plan Cycle:** 2022 - 2023, 2023 - 2024, 2024 - 2025	
Action Plan Status: Active **Action Plan:** Develop new courses and certificates needed, as identified by advisory committee and LMI reports. **Action Plan Cycle:** 2022 - 2023, 2023 - 2024, 2024 - 2025	
Action Plan Status: Active **Action Plan:** Hire new contract faculty who will primarily teach CTE courses and allow our programs to grow. (relates to Goal 1 action 1). **Action Plan Cycle:** 2022 - 2023, 2023 - 2024, 2024 - 2025	**Submission Date**: 01/24/2024 **Action Plan Update**: A contract position has been approved and will be filled to start in Fall 2024. **Update Year**: 2023 - 2024 **Action Plan Progress**: On Track

Goal 4: In the next 4 years (program review cycle), increase the number of high school students who go on to enroll at Mesa by 5%.

Unit Goal: Goal 4: In the next 4 years (program review cycle), increase the number of high school students who go on to enroll at Mesa by 5%, ideally with the goal of earning a degree or certificate in CISC.
Goal Status: Active
Beginning Year: 2022 - 2023
Projected Completion Year: 2025 - 2026
Mapping
Mesa College Strategic Plan: Roadmap to Mesa2030: (X - Highlight the X to Align)

- Pathways and Partnerships - Objective 1: X
- Pathways and Partnerships - Objective 2: X

Summary and Reflection

- Pathways and Partnerships - Objective 3: X
- Pathways and Partnerships - Objective 4: X
- Pathways and Partnerships - Objective 5: X

Action Plans	Action Plan Update
Action Plan Status: Active **Action Plan:** . Increase outreach and mentoring through CCAP offerings. **Action Plan Cycle:** 2022 - 2023, 2023 - 2024, 2024 - 2025, 2025 - 2026	**Submission Date**: 01/24/2024 **Action Plan Update**: FTEF cuts imposed on our growing program mean that we will need to either reduce on campus/online course offerings or CCAP course offerings. Because reducing on campus/online course offerings will negatively impact our students' ability to transfer in a timely fashion, our department is choosing to put part of the FTEF cuts on CCAP classes. This also means we will not be able to increase our CCAP course offerings as hoped. **Update Year**: 2023 - 2024 **Action Plan Progress**: Barriers Encountered
Action Plan Status: Active **Action Plan:** Increase outreach through ICT days, like we held for Junior High students prior to the pandemic. **Action Plan Cycle:** 2022 - 2023, 2023 - 2024, 2024 - 2025, 2025 - 2026	
Action Plan Status: Active **Action Plan:** Participate in ICT marketing work with the CTE office. **Action Plan Cycle:** 2022 - 2023, 2023 - 2024, 2024 - 2025, 2025 - 2026	**Submission Date**: 01/24/2024 **Action Plan Update**: We have been working with the CTE office through a vendor that they selected related to a marketing campaign. We are still waiting to see the actual marketing materials. **Update Year**: 2023 - 2024 **Action Plan Progress**: On Track

Goal 5: Create a homework space for ICT students in the BT building.

Unit Goal: Goal 5: Create a homework space for ICT students in the BT building, where they can study, collaborate, receive tutoring assistance, and build connections with other students. The community room is needed to improve equity gaps by creating community so that students help support each other as they work together to learn.
Goal Status: Active
Beginning Year: 2022 - 2023
Projected Completion Year: 2025 - 2026
Mapping
Mesa College Strategic Plan: Roadmap to Mesa2030: (X - Highlight the X to Align)

- Community - Objective 1: X
- Community - Objective 2: X

Summary and Reflection

- Community - Objective 3: X
- Community - Objective 4: X
- Community - Objective 5: X
- Completion - Objective 1: X
- Completion - Objective 2: X
- Completion - Objective 3: X
- Completion - Objective 4: X

Action Plans	Action Plan Update
Action Plan Status: Active **Action Plan:** We have previously designed a plan to create this space. Funding was identified, but then lost, because approval at higher administrative levels took too long to secure. We now need to identify a new funding source and continue our work to secure administrative approval. **Action Plan Cycle:** 2022 - 2023, 2023 - 2024, 2024 - 2025, 2025 - 2026	**Submission Date**: 01/24/2024 **Action Plan Update**: We have successfully moved the BT-216 computers to BT-208, so BT-216 is now ready to be outfitted as a homework space. While we are working on obtaining funding for modern, up-to-date equipment, we are repurposing old computers from a MULT lab classroom that was able to obtain new computers, and plan to place them in BT-216. We are encountering issues with planned staffing to keep the room open for students to use though. **Update Year**: 2023 - 2024 **Action Plan Progress**: Barriers Encountered