Departmental BPC Plan
Computer Science and Software Engineering
California Polytechnic State University in San Luis Obispo

Effective dates of Plan: 10/17/2023 - 10/17/2025

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1. Context

The Computer Science and Software Engineering department includes two bachelor's degrees (B.S. Computer Science (CS) and B.S. Software Engineering (SE)) serving 745 undergraduate CS students and 231 undergraduate SE students; and a master's degree (M.S. Computer Science) serving 50 graduate students. Cal Poly in San Luis Obispo (Cal Poly) is the only one of the 23 CSU campuses not designated as a Hispanic Serving Institution. As of 2022, the CSSE department includes a Hispanic and Latino/a/x population of 13.3% (versus 21.1% for Cal Poly as a whole) . Recruitment of Hispanic and Latinx students is a top priority for Cal Poly leadership along with improving retention. In computing, 17.8% of Hispanic/Latino/a/x students leave computing in the first 2 years versus 7.9% of non-under-represented minorities (non-URM) students (averages from Fall 2014-2018). Note, this measure does not include 'change of majors', which increases the number of Hispanic and Latinx students leaving the major. One factor contributing to Cal Poly being a primarily white-serving institution (PWI) is the mismatch of our applicant pool with the demographics of California. For example, 45% of the CSU qualified graduating class of California high school students was Hispanic, but only 23% of Cal Poly SLO College of Engineering applicants in 2019 were Hispanic (while 26.5% of CSU qualified graduating class of California high school students were White and 29% of Cal Poly College of Engineering applicants in 2019 were White).

2. Goals

The department BPC plans are as follows:

G1: In the next 2 years, increase the number of applications to the CSSE department from Hispanic and Latino/a/x students for first-time and transfer students (1.5-2x current rate).

G2: In the next 2 years, increase yield for admitted Hispanic and Latino/a/x students to 25% (from 20.18%).

G3: In the next 3 years, increase two-year retention for attending Hispanic and Latino/a/x students; i.e., reduce the percentage leaving computing in their first two years from the current 17.8% to at most 8.9%.

G4: In the next year, learn more about transfer student success and concerns, and increase the number of transfer applications (i.e., explore comparisons for demographic groups, etc.).

G5: In the next year, study options for non-major access to early computing courses and commit to a proposal within the department.

3. Activities and Measurement

The department will engage in the following activities to meet these goals:

A1: Increase outreach to K12 students and teachers to increase awareness of Cal Poly at partner schools with significant Hispanic and Latino/a/x students, including leveraging existing efforts of the University Center for Engineering, Science and Mathematics Education (CESAME), Engineering Possibilities in College (EPIC), and training for high school teachers. This includes reaching out to school counselors, recruiting trips to schools, application workshops, and STEM outreach as well as conducting surveys (e.g. NCWIT survey) about attendance at such events. **(G1)** *Department contact:* **Aaron Keen.** *Measure: Number of K12 engagements*

A2: Increase faculty engagement in recruiting admitted students from historically marginalized groups. For example, in the April campus open house events, include focused activities on student experience for students from marginalized race/ethnicity background (e.g., Hispanic and Latino/a/x focused event), also including a remote component (e.g., phone/zoom/email/written card) **(G2)** *CSSE Department contact*: **April Grow.** *Measure: number of faculty engaged, number of activities*

A3: Learn more about factors related to Hispanic and Latino/a/x student choice to attend Cal Poly and their initial experiences on campus. (This includes engaging with alumni,the Multicultural Engineering Program (MEP) and current students). **(G2, G3)** *CSSE Department contact:* **Rodrigo Canaan.** *Measure: survey conducted, analyzed and presented to department*

A4: Promote and support student clubs in computing that are committed to serving Latino/a/x students, including Color Coded and the Society of Hispanic Professional Engineers (SHPE) **(G3)** *Department contact:* **Foaad Khosmood.** *Measure:* Level of student and faculty participation in club activities, number of activities/events.

A5: Education for all CSSE faculty about inclusive pedagogical practices and about student choices when leaving or joining computing (by engaging with Dream Center, MEP, Engineering student services) **(G3,G5)** *Department contact:* **Rodrigo Canaan**. Measure*: Establishment of dept. policy for non-major courses and number of faculty attending learning sessions*

A6: Data gathering for transfer student indicators (from which colleges do our transfer students come, in which classes do they struggle, DFW patterns) **(G1, G4)** *Department contact* **Stephen Beard.** *Measure: Presentation on transfer student success/challenges to department*

A7: Engage in targeted trips to community colleges (CCs) with high Hispanic and Latino/a/x population to promote Cal Poly, including looking at CCs with high transfer rates vs low transfer rates, work directly with CCs with low rates (partner with ENGAGE, a cohort-based mentorship program for CC students aiming for four-year universities). **(G4)** *Department contact:* **Theresa Migler.** *Measure: Number of trips completed and increase in number of transfer applications.*

A8: Curriculum improvements in first 2 years of the major and expanded course offerings to increase retention of all demographics – deliberate reconsideration for the roles of CPE 357 (Systems Programming) in our curriculum and of more contextualized “computing in society” assignments in early courses **(G3, G4, G5)** *Department* contact: **Ayan Kazerouni.** *Measure: Visible changes in curricula across sections; improved retention of majors; increased total number of students engaged with computing (class enrollments) among all demographics.*