Departmental BPC Plan
Department of Computer Science and Engineering (CSE)
Michigan State University (MSU)

Effective dates of Plan: 11/29/23-11/29/25

Contact: Abdol Esfahanian, Professor and Chair, esfahanian@msu.edu
Laura Dillon, DEIA Steering Committee (DEIASC) Chair, ldillon@msu.edu

Context:

CSE at MSU is in the College of Engineering (CoE). It offers three bachelor's degrees: BS in CS, computational data science (CDS), and computer engineering (CE),[1] plus a CS minor; and three graduate degrees: MS in CS, MS in data science (DS), and PhD in CS.[2] In Fall 2022, the demographics of (full time) students seeking degrees in these programs were:[3]

- BS (CS majors: 1674 students, 19% women, 9% URG[4]; CS minors: 41, 27% women, <5 URG), (CDS majors: 72 students, 35% women, <5 URG), (CE majors: 306 students, 11% women, 11% URG)
- MS (CS: 44 students, 20% women, <5 URG)
- PhD (CS: 150 students, 23% women, <5 URG)

Undergraduates apply for admission to our majors before their junior year. To be admitted, they must complete 28 credit hours of coursework that includes a prescribed set of 5 STEM courses and achieve a minimum 3.0 GPA. Dillon serves as the contact for all activities.

Goals:

G1: By spring 2024, establish an infrastructure for infusing DEIA into all aspects of CSE's operations. This goal includes the creation of formal bylaws for the DEIA steering committee (DEIASC) and the integration of activities supporting DEIA into the charges for other CSE committees, e.g., the undergraduate curriculum committee (CC), graduate studies and research committee (GSRC), and advisory committee (AC). It also includes a regular schedule for collecting and reporting data related to recruitment and retention.

G2: By spring 2025, increase retention of undergraduate students to junior/senior status by 5%, maintain retention rates for women at the program level, and increase the retention rate of URG students by 10%. Retention rates will be collected as part of G1.

G3: For both Fall 2024 and Fall 2025, increase the number of undergraduate women and students from URG who are admitted into the program by 5%.

Activities and Measurement:

G1: DEI Infrastructure in CSE

A1a: Formalize DEIASC by incorporating a defined role for it and other committees into bylaws (AC)

A1b: Assemble and report disaggregated student data including applications, admissions, acceptances; changes of major in (from where) and out (to where); major, minor, and course enrollments and graduations; drop/fail/withdraw (DFW) rates per course.

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[1] Jointly offered with Electrical and Computer Engineering
[2] DS is jointly offered with Statistics and Computational Mathematics, Science and Engineering.
[3] Counts are of full-time students who declared a preference for a major in CSE, including those not yet admitted.
[4] Students from URG refers to students who identify as Latinx, Black/African American, Native American, and/or Pacific Islander.

A1c: Collect BPC-focused data on students' experience of the program with tools such as the CRA CERP Data Buddies Survey, exit surveys of students, and focus groups; and on students' engagement and satisfaction with CSE resources (e.g., instructional platform, assistive technology, website).
Evaluation: DEIASC and CSE committees maintain a checklist of data gathered each year; track the completeness of the annual DEIA report; and track survey responses.

G2: Increase retention of students, particularly URG students
A2a: CC annually reviews disaggregated DFW rates in required courses.
A2b: For at least one required course per year, CC conducts an inclusion audit of lectures, activities, examples, project choices, and team management.
A2c: CC and DEIASC implement and evaluate interventions to improve inclusivity and retention (e.g., inclusive instructional models, modification of requirements for the major, and alternative pathways into the major).
A2d: CC & DEIASC establish annual TA training on inclusion, monitoring, and feedback; transparent TA application process; and inclusive TA recruitment processes.
A2e: GSRC annually reviews disaggregated doctoral student progress through program milestones (qualifying exam, comprehensive exam) and other indicators (e.g., committee formed, papers published).
A2f: Faculty participate in inclusive teaching and mentoring activities at faculty meetings and in other professional development activities focused on DEIA in teaching and mentoring.
A2g: Faculty serve as advisor/advocate for student-led affinity groups (WIC, SHPE, NSBE, and SWE) to increase their impacts on recruitment and retention activities.
A2h: Students and faculty attend the annual Grace Hopper and Tapia conferences, CRA graduate cohort meetings, NCWIT Summit, and CS Education conferences (e.g., SIGCSE) to learn about BPC.
A2i: Develop and evaluate CSE instructional resources meant to increase URG student engagement and satisfaction, particularly in introductory courses.
Evaluation: Analyze data gathered in G1 from current students and compare over time. Track faculty involvement and TA evaluations.

G3: Increase enrollment of women and URG students
A3a: DEIASC conducts annual inclusivity audits of the website and physical spaces (labs, lounges, hallways, restrooms) for messaging to current and potential students and parents.
A3b: Faculty and students lead BPC-focused K-12 outreach programs such as Spartan Coding Clubs (SPARCC), MSU Co-Ed High School Programming Competition, Engineering & Science Success Academy, and outreach-leadership inclusivity training for new students.
A3c: Faculty participate in BPC-focused research outreach programs such as ENSURE, DREU, and SROP, and in NSF REU programs, with a focus on recruiting women and URG students.
A3d: GSRC annually reviews disaggregated graduate application, admission, and enrollment data for issues and trends.
A3e: Survey first-year women and URG students to learn what factors influenced their decision to apply/accept admission to MSU and to decline admission to other colleges.
A3f: Streamline and support transfer pathways from MI Community Colleges which have high percentages of women and students from URGs.
Evaluation: Track the diversity of applicants and incoming students using data in G1. Track faculty, staff, and current student engagement in recruitment activities.