Adapting CS2023 for Two-Year Programs:
The ACM CCECC Computer Science Transfer Model

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Abstract

The ACM *Committee for Computing Education in Community Colleges* (CCECC) is advancing the *Computer Science Transfer for Two-Year Programs*—a model adapted from the ACM/IEEE-CS/AAAI *CS2023 Curricula* to address the unique structure and mission of two-year institutions. Building on extensive community feedback from the first public review, the second iteration refines the curricular framework to better align with both academic transfer and workforce preparation pathways. Specifically, the model distinguishes between *essential* and *supplemental* competencies, defines a balanced distribution of instructional hours across Knowledge Areas (KAs), and integrates cross-cutting domains in *Artificial Intelligence (AI)*, *Cybersecurity (CYB)*, and *Society, Ethics, and the Profession (SEP)*.

Two-year computing programs play a critical role in expanding access to computer science education, often serving as gateways for students transferring to four-year institutions or entering the workforce with applied technical skills. The CCECC model acknowledges institutional variability—such as course sequencing, mathematics prerequisites, and regional workforce needs—while ensuring fidelity to CS2023's guiding principles of rigor, relevance, and adaptability. By embedding cross-disciplinary and ethical dimensions throughout the curriculum, the model supports students in developing both computational and professional competencies essential to the modern computing landscape.

Methodologically, the framework is grounded in collaborative curriculum design informed by nationwide community input, data from articulation agreements, and alignment with other ACM curricular projects such as IT2027 and the ACM *Live Curricula* (LiveC) initiative. Each KA is organized around three dimensions: (1) *core conceptual knowledge* adapted from CS2023; (2) *competency mapping* distinguishing foundational versus advanced expectations; and (3) *contextual adaptation* reflecting the pedagogical, institutional, and workforce realities of two-year programs. The model also emphasizes *curricular intersections*—highlighting shared competencies across computing disciplines to promote curricular coherence and reduce redundancy.

The integration of AI, cybersecurity, and ethics throughout the curriculum reflects both emerging industry trends and the educational imperative to prepare students for a rapidly evolving technological ecosystem. By connecting these domains, the CCECC framework cultivates a holistic and forward-looking understanding of computing that is adaptable, inclusive, and responsive to societal challenges.

This poster presents the current state of the CCECC's model and invites the computing education community to participate in shaping its final version. Attendees will have the opportunity to review the structure of the proposed Knowledge Areas, discuss competency mappings, and provide feedback on curricular priorities. The resulting insights will guide the development of the final *Two-Year Computer Science Transfer* guidelines, scheduled for release following the second public review. Ultimately, this initiative aims to strengthen transfer pathways, support faculty and institutional innovation, and ensure that two-year programs remain at the forefront of accessible, high-quality computer science education.