

Computer Science Endorsement Standards (111790)
December 16, 2021

At the request of the Ohio Department of Higher Education, a panel of experts from both public and private institutions of higher education in consultation with the Ohio Department of Education computer science program specialist was convened by the Ohio Department of Higher Education in order to review and revise Computer Science Endorsement Standards. The Ohio Educator Licensure Program Standards for Computer Science Endorsement programs were reviewed between September and December of 2021, with meetings occurring virtually throughout the fall. After extensive review and discussion, the committee recommended the following:

- Align to enhanced Computer Science Teachers Association (CSTA) Standards for CS Teachers, Standard 1 CS Knowledge and Skills.
- Note that CSTA Standards for CS Teachers, Standard 2 Equity and Inclusion, Standard 3 Professional Growth and Identity, Standard 4 Instructional Design, and Standard 5 Classroom Practice are assumed to be covered by the full-license program.
- 50 hours of field experience in teaching computer science concepts is required. This can be completed in a K-12 setting or in an introductory computer science course at the college/university.

This endorsement is valid for teaching the subject or learners named, who is deemed to be of good moral character; who has successfully completed an approved program of preparation; who has successfully completed an examination prescribed by the State Board of Education; and who has been recommended by the dean or head of teacher education at an approved institution. The endorsement may be added to any standard teaching certificate or license.

We wish to acknowledge the following individuals who served on the expert panel:

Chansu Yu, Chair	Cleveland State University
Jim Kiper	Miami University
Barry Wittman	Otterbein University
Tyler Highlander	Wittenberg University
Debbie Jackson	Cleveland State University
John Wiseman	Ohio Department of Education

Enhanced Computer Science Teachers Association (CSTA) Standards for CS Teachers,
Standard 1 CS Knowledge and Skills

1a. Apply CS Practices
Apply CS and computational thinking practices in flexible and appropriate ways. Practices include: Fostering an Inclusive Computing Culture, Collaborating Around Computing, Communicating About Computing, Recognizing and Defining Computational Problems, Developing and Using Abstractions, Creating Computational Artifacts, and Testing and Refining Computational Artifacts.
1b. Apply knowledge of computing systems
Apply knowledge of how hardware and software function to input, process, store, and output information within computing systems by analyzing interactions, designing projects, and troubleshooting problems.
1c. Model networks and the Internet and apply security practices
Model how computing devices connect via networks and the Internet to facilitate communication, explain tradeoffs between usability and security, and apply security measures.
1d. Use and analyze data
Collect, store, transform, and analyze digital data to better understand the world and make more accurate predictions.
1e. Develop programs and interpret algorithms
Design, implement, debug, and review programs in an iterative process using appropriate CS tools and technologies. Interpret algorithms, and explain tradeoffs associated with different algorithms.
1f. Analyze impacts of computing and introduction of current CS subjects
Analyze how people influence computing through their behaviors, cultural norms, and social interactions, as well as how computing impacts society in both positive and negative ways. Describe or explore computing technologies such as artificial intelligence, cybersecurity, machine learning, augmented/virtual reality, or other current or evolving subjects in CS.
Field requirement
50 hours of field experience in teaching computer science concepts is required. This can be completed in a K-12 setting or in an introductory computer science course at the college or university. (If field experience is completed in college-level course, submit corresponding syllabi.)