

# **KENTUCKY DEPARTMENT OF EDUCATION**

## **STAFF NOTE**

### **Review Item:**

704 KAR 8:010 Kentucky Academic Standards for Computer Science (First Reading, New Regulation)

### **Rationale:**

To support quality computer science education and expand learning opportunities for all students while broadening access to critical and computational thinking through problem-solving skills, the Kentucky Department of Education (KDE) developed new K-12 Computer Science Standards. Additionally, these standards will be:

- Integrated in cross-curricular areas of study;
- Used for the creation and implementation of elective Computer Science courses;
- Incorporated in career and technical education pathway courses;
- Referenced in AP Computer Science Courses; and,
- Considered as demonstrated performance-based competencies in technology.

### **Applicable Statute or Regulation:**

KRS 156.070, KRS 156.160,

### **History/Background:**

***Existing Policy:*** The Carl D. Perkins Career and Technical Education Improvement Act of 2006 included new requirements for “programs of study” that linked academic and technical content across secondary and postsecondary education, and strengthened local accountability provisions that ensured continuous program improvement. Based on the job market (Southern Region Education Board, 2016), the importance for Kentucky students to gain increased access to high-quality computer science instruction continues to grow. Computer science and coding utilize critical thinking and problem-solving skills that benefit all students and all programs.

Currently, Kentucky does not have computer science standards for elective computer science courses.

***Summary:*** The U.S. Bureau of Labor Statistics projects that occupations related to Science, Technology, Engineering and Mathematics (STEM) will grow to more than nine million between 2012 and 2022. This is an increase of about one million jobs over a 10-year period. According to Code.org (2017), a national, nonprofit organization that sponsors the Hour of Code, 71 percent of all new jobs in STEM fields are in computing, but only 8 percent of STEM graduates are in Computer Science. Computer Science graduates earn the second-highest starting salary and have the highest full-time employment (76 percent) within six months of graduation. Yet by 2020, there will be one million more computing jobs than students graduating from college with computing skills. In Kentucky, this identified gap represents tremendous opportunity. Specifically, Code.org (2018) cites 2,360 open computing jobs in Kentucky while only

producing 434 computer science graduates. As a result, the KDE is supporting quality computer science education with the creation of the Kentucky Academic Standards for Computer Science.

The purpose of these standards is to:

- Support current funding at the state, district and school levels to support expanded computer science learning opportunities in schools.
- Solidify a foundation for the integration and teaching of the essential literacy skills that students need to master grade-appropriate computer science standards.
- Partner with secondary and postsecondary educators, experts and industry leaders to develop K-12 computer science standards that include the essential concepts and practices students should master in the elementary and middle grades and high school.
- Provide classroom teachers, schools and districts with a foundation to develop or adopt standards-based, developmentally appropriate computer science curricula that appeal to diverse learners in the elementary, middle and high school grades.

A School Based Decision-Making Council (SBDM) may use these new computer science standards when offering integrated learning experiences or elective courses to students in grades kindergarten through grade 12.

For elective computer science courses in a Kentucky public high school, a student is expected to meet the minimum content requirements established in the Kentucky Academic Standards for Computer Science.

***Budget Impact:*** State funds allocated for standards development were used to develop these standards. The cost to develop the computer science standards has been \$10,852 thus far. Staff time will continue to be impacted after final approval as a result of the development of resources to support the implementation of these standards.

### **Groups Consulted and Brief Summary of Feedback:**

Focus groups consisting of members from the following:

- K-12 District Education Technology Leadership Staff
- Kentucky Society of Technology in Education (KySTE)
- Student Technology Leadership Program (STLP)
- K-12 Education Technology Vendors and Partners

The standards were informed by feedback from the public and education technology community.

The Local Superintendents Advisory Council (LSAC) will review this regulation at its meeting on July 24, 2018.

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**Interim Commissioner of Education**

**Date:**

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