KENTUCKY DEPARTMENT OF EDUCATION STAFF NOTE

Topic: 704, KAR 8:010, Kentucky Academic Standards for Computer Science (2nd Reading)
Date: October 2018
Action Requested: ☐Review   ☐Action/Consent   ☒Action/Discussion

SUMMARY OF ISSUE BEFORE THE BOARD:

To take action on 704 KAR 8:010, Kentucky Academic Standards for Computer Science. (Second Reading)

First Reading of this regulation proposal was heard at the August 2, 2018. Change made remove the word "course" in order to clarify the course is not only for high school students.
These changes have been made following the first reading and, accordingly, is being brought back to the KBE for consideration and final action.

COMMISSIONER'S RECOMMENDATION:

The Commissioner recommends adoption of 704 KAR 8:010.

APPLICABLE STATUTE OR REGULATION:

KRS 156.070, KRS 156.160

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. There are currently 19 types of computer science courses being offered, making up a total of 266 different Computer Science class throughout the state. 4,280 students are enrolled in those courses.

Summary of Issue: 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, 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 $16,852 thus far. This figure now contains an additional $6,000 in staff costs, which were not included in the first report.

GROUPS CONSULTED AND BRIEF SUMMARY OF RESPONSES:

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)
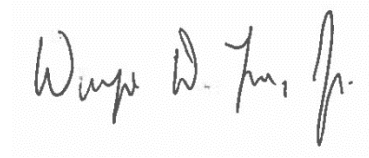- K-12 Education Technology Vendors and Partners

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

The Local Superintendents Advisory Council (LSAC) will review this regulation on September 25, 2018 and provide feedback prior to the board meeting.

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Interim Commissioner of Education

Category:	☐ **District Innovation** ☒ **Strengthening Educators** ☐ **Family/Community Involvement**		
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