WEST VIRGINIA LEGISLATURE

2022 REGULAR SESSION

Introduced

Senate Bill 529

BY SENATORS BLAIR (MR. PRESIDENT) AND BALDWIN

(BY REQUEST OF THE EXECUTIVE)

[Introduced February 01, 2022; referred

to the Committee on Education]

A BILL to amend and reenact §18-2-12 of the Code of West Virginia, 1931, as amended, relating to computer science education in West Virginia schools; recognizing a need to provide coursework on computational thinking, block-based programming, text-based programming, network communication, computer architecture, and cyber security; and requiring the board to update and build upon prior computer science education plans to include additional subject matter.

Be it enacted by the Legislature of West Virginia:

ARTICLE 2. STATE BOARD OF EDUCATION.

§18-2-12. Computer science courses of instruction; learning standards; state board plan development.

(a) Legislative findings:

(1) Computer technology increasingly is pervasive in nearly every function of society from consumer products to transportation, communications, electrical infrastructure, logistics, agriculture, medical treatments, research, security, and financial transactions;

(2) The U. S. Bureau of Labor Statistics predicts that by 2024, there will be more than 800,000 new jobs in the STEM fields and more than two thirds of these directly will be in computing occupations;

(3) Studying computer science prepares students to enter many career areas, both within and outside of computing, teaching them logical reasoning, algorithmic thinking, design, and structured problem-solving skills applicable in many contexts from science and engineering to the humanities and business;

(4) Computer science is an established discipline at the collegiate and post-graduate levels but, unfortunately, computer science concepts and courses have not kept pace in the K-12 curriculum, to the point that the nation faces a serious shortage of computer scientists at all levels that is likely to continue for the foreseeable future; and

(5) Organizations such as the Computer Science Teachers Association, the International Society for Technology in Education, and technology industry leaders have developed recommendations for standards, curriculum, and instructional resources for computer technology learning in K-12 schools.

(6) Foundational age-appropriate instruction in the computer science field for all students beginning in elementary school with required and optional advanced computer science instruction for middle school and high school students has become an important component of a well-developed education. Computer science standards should align to relevant aspects of the field such as computational thinking, block-based programming, text-based programming, network communication, computer architecture, and cyber security. Computer science education standards should be established to ensure students have the fundamentals to be successful in a digital-driven world and the advanced knowledge to prepare them for careers in or linked to computer science.

(b) Prior to the ~~2017~~ 2023 regular legislative session, the state board shall submit a plan to the Legislative Oversight Commission on Education Accountability, that builds upon certain plans which may have been developed and submitted in previous years, ~~for the implementation of~~ to implement and update computer science instruction and learning standards in the public schools. The plan shall include at least the following:

(1) Recommendations for a core set of learning standards designed to provide the foundation for a complete computer science curriculum and its implementation at the K-12 level including, but not limited to:

~~(A) Introducing the fundamental concepts of computer science to all students, beginning at the elementary school level;~~

~~(B) Presenting computer science at the secondary school level in a way that is both accessible and worthy of an academic curriculum credit and may fulfill a computer science, math, or science graduation credit~~

~~(C)~~(A) Providing relevant course work in the areas of computational thinking, block-based programming, text-based programming, network communication, computer architecture, and cyber security; and

~~(D)~~ (B) Encouraging schools to ~~offer~~ integrate base level computer science skills into each student's required course work, and make available, in grades six through 12, additional secondary level computer science courses that will allow interested students to study facets of computer science in more depth and prepare them for entry into the workforce or college; and

~~(E)~~ (C) Increasing the availability of rigorous computer science for all students.

(2) Recommendations for teaching standards and secondary certificate endorsements if necessary for teachers to deliver curriculum appropriate to meet the standards;

(3) Recommendations for units of instruction or courses in academic and vocational technical settings to include computer programing, network communication, computer architecture, and cyber security, that complement any existing K-12 computer science and IT curricula where they are already established, especially the advanced placement computer science curricula and professional IT certifications; and

(4) Proposals for implementation of the recommendations over a period not to exceed four years and estimates of any associated additional costs.

(c) Nothing in this section requires adoption or implementation of any specific recommendation or any level of appropriation by the Legislature.

(d) Recognizing the importance of computer science instruction and how computer science instruction will assist students in their transition to post-secondary opportunities, prior to the 2020-2021 school year, the state board shall adopt a policy detailing the appropriate level of computer science instruction that shall be available to students at each programmatic level.

(e) The West Virginia Department of Education shall develop and offer professional development opportunities to ensure educators are equipped with the requisite knowledge and skill to deliver computer science instruction as outlined in this section. The department may

partner with high-quality computer science professional learning providers in developing and offering the professional development opportunities.