

WEST VIRGINIA LEGISLATURE

2022 REGULAR SESSION

Introduced

House Bill 4532

BY DELEGATES HANSHAW (MR. SPEAKER) AND SKAFF

(BY REQUEST OF THE EXECUTIVE)

[Introduced February 03, 2022; Referred to the
Committee on Education then Finance]

1 A BILL to amend and reenact §18-2-12 of the Code of West Virginia, 1931, as amended, related
2 to computer science education in West Virginia schools; recognizing a need to provide
3 coursework on computational thinking, block-based programming, text-based
4 programming, network communication, computer architecture, and cyber security;
5 requiring the board to update and build upon prior computer science education plans to
6 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.

1 (a) Legislative findings:

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

5 (2) The U. S. Bureau of Labor Statistics predicts that by 2024, there will be more than
6 800,000 new jobs in the STEM fields and more than two thirds of these directly will be in
7 computing occupations;

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

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

16 (5) Organizations such as the Computer Science Teachers Association, the International

17 Society for Technology in Education, and technology industry leaders have developed
18 recommendations for standards, curriculum, and instructional resources for computer technology
19 learning in K-12 schools.

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

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

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

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

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

42 ~~(C)~~ (A) Providing relevant course work in the areas of computational thinking, block-based

43 programming, text-based programming, network communication, computer architecture, and
44 cyber security; and

45 ~~(D)~~ (B) Encouraging schools to ~~offer~~ integrate base level computer science skills into each
46 student's required course work, and make available, in grades 6 – 12, additional secondary level
47 computer science courses that will allow interested students to study facets of computer science
48 in more depth and prepare them for entry into the workforce or college; and

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

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

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

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

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

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

65 (e) The West Virginia Department of Education shall develop and offer professional
66 development opportunities to ensure educators are equipped with the requisite knowledge and
67 skill to deliver computer science instruction as outlined in this section. The department may
68 partner with high-quality computer science professional learning providers in developing and

69 offering the professional development opportunities.

NOTE: The purpose of this bill is to encourage the teaching of additional computer science subject matter in schools across the State of West Virginia, to include computational thinking, block-based programming, text-based programming, network communication, computer architecture, and cyber security, all to better equip students for careers in today's technology-driven economy and our Nation's security efforts.

Strike-throughs indicate language that would be stricken from a heading or the present law and underscoring indicates new language that would be added.