COMMITTEE REPORT

January 25, 2017

**H. 3427**

Introduced by Reps. Lucas, Loftis, Allison, Stringer, Erickson, Simrill, G.R. Smith, McKnight, Robinson‑Simpson, Martin, West, Long, Burns, Atwater, McCoy, Hardee, Hewitt, Fry, Jordan, Murphy, Spires, G.M. Smith, McCravy, Clemmons, McEachern, Taylor, Arrington, Johnson, Huggins, Hamilton, Elliott, Funderburk, Bales, Bannister, Blackwell, Bradley, Chumley, Clary, Clyburn, Cobb‑Hunter, Cole, Crawford, Delleney, Dillard, Douglas, Forrest, Forrester, Hayes, Henderson, Herbkersman, Hiott, Lowe, D.C. Moss, B. Newton, W. Newton, Pope, Quinn, Ridgeway, S. Rivers, Ryhal, Sandifer, Tallon, Thayer, Whitmire, Hixon, Anderson, Anthony, Gagnon, Parks, Pitts, Ott, King, Henegan, Willis, Yow, Williams, Jefferson, Duckworth, White, Finlay, Bernstein, J.E. Smith, Bedingfield, Felder, Bennett, Davis, Mitchell, Rutherford, Neal, Stavrinakis, Govan, Putnam, Collins, Brown, Weeks, Hosey, Bowers, V.S. Moss, Howard, Kirby, Sottile, Whipper, Norrell, Ballentine, Toole, Thigpen, Cogswell, Daning, Crosby and Knight

S. Printed 1/25/17--H.

Read the first time January 11, 2017.

**THE COMMITTEE ON EDUCATION AND PUBLIC WORKS**

To whom was referred a Bill (H. 3427) to amend the Code of Laws of South Carolina, 1976, to enact the “South Carolina Computer Science Education Initiative” by adding Section 59‑29‑250, etc., respectfully

**REPORT:**

That they have duly and carefully considered the same and recommend that the same do pass with amendment:

Amend the bill, as and if amended, by deleting all after the enacting words and inserting:

/ SECTION 1. This act must be known and may be cited as the “South Carolina Computer Science Education Initiative”.

SECTION 2. Article 1, Chapter 29, Title 59 of the 1976 Code is amended by adding:

“Section 59‑29‑250. (A) The purpose of this section is to expand access to computer science learning experiences to all students because computer science supports literacy, math, problem‑solving, and technological skills, and advances productivity in every discipline, industry, and profession.

(B) Before August 1, 2018 the State Board of Education shall adopt grade appropriate standards for computer science and computational thinking and computer coding for grades 9‑12. Experts and officials from higher education, business and industry must be included in the development of the standards.

(C) Not later than the 2019‑2020 School Year, each public high school and public charter high school must offer at least one computer science course which:

(1) is rigorous and standards‑based;

(2) meets or exceeds the curriculum standards and requirements established by the State Board of Education;

(3) meets the needs of diverse students who will pursue postsecondary education or who will enter careers in computing and information technology upon graduation; and

(4) is made available in a traditional classroom setting, in a dual enrollment course, blended learning environment, online‑based, or other technology‑based format tailored to meet the needs of each participating student.

(D) Beginning in the 2018‑2019 School Year, the Department of Education shall:

(1) employ one full‑time employee whose sole responsibility is to coordinate and lead the South Carolina Computer Science Education Initiative, provided the employee must have prior work experience in the computer science industry;

(2) support K‑12 academic and computer science teachers in designing interdisciplinary, project‑based instruction and assignments that engage students in applying literacy, math, and computational thinking skills to solve problems;

(3) design career pathways that connect students to postsecondary programs, degrees, or postsecondary credentials in high‑demand career fields including, but not limited to, cybersecurity, information systems, informatics, computer engineering, and software development as identified by the Department of Commerce;

(4) offer professional development and teacher endorsements to new teachers that will teach computer science who complete a two to four‑week, full‑day summer institute;

(5) the State Board of Education shall promulgate regulations to create certification pathways for computer science teachers and the Department of Education also shall develop criteria for postsecondary computer science teacher preparation programs;

(6) provide information and materials which identify emerging career opportunities in computer science and related fields to parents, students, teachers, and guidance counselors; and

(7) assist districts in developing partnerships with business, industry, higher education, and communities to provide afterschool and extracurricular activities that engage students in computer science.

(E) Recognizing that successful implementation of computer science education requires effective instruction, the Department of Education shall develop guidelines for use by school districts and schools outlining the educational and degree requirements for appropriate computer science teachers. The Commission on Higher Education shall determine what, if any, financial incentives are needed by institutions of higher education to design programs to prepare and credential computer science teachers.

(F)(1) To improve science, technology, engineering, and mathematics (STEM) education in the State, the Office of the Governor, beginning in fiscal year 2018‑2019, shall establish criteria and a process for designating a STEM community or STEM region. Consistent with federal law, STEM includes computer science.

(2) The criteria for designation as a STEM community or STEM region must include a requirement that educators, administrators, business leaders, students, parents, governmental officials, and business and industry groups within a community or region work to:

(a) create awareness;

(b) promote partnerships with education and industry;

(c) develop and execute action plans for improving STEM education and training;

(d) identify and acquire the needed resources to improve STEM education and training; and

(e) identify and accumulate STEM data within the community or region including, but not limited to:

(i) kindergarten through twelfth grade academic achievement;

(ii) the number of STEM‑related degree holders in the local workforce;

(iii) the number of STEM‑related degrees conferred; and

(iv) the number of STEM‑related certifications or credentials obtained.

(3) The region or community also shall develop a plan to recognize and promote success in both student and teacher accomplishments in the STEM area within the community or region.”

SECTION 3. If any section, subsection, paragraph, subparagraph, sentence, clause, phrase, or word of this act is for any reason held to be unconstitutional or invalid, such holding shall not affect the constitutionality or validity of the remaining portions of this act, the General Assembly hereby declaring that it would have passed this act, and each and every section, subsection, paragraph, subparagraph, sentence, clause, phrase, and word thereof, irrespective of the fact that any one or more other sections, subsections, paragraphs, subparagraphs, sentences, clauses, phrases, or words hereof may be declared to be unconstitutional, invalid, or otherwise ineffective.

SECTION 4. This act takes effect upon approval by the Governor. /

Renumber sections to conform.

Amend title to conform.

MERITA A. ALLISON for Committee.

**STATEMENT OF ESTIMATED FISCAL IMPACT**

**Explanation of Fiscal Impact**

**Amended by the House Education and Public Works K-12 Subcommittee on January 18, 2017**

**State Expenditure**

This bill as amended requires the Department of Education (department) to adopt grade appropriate standards for computer science, computational thinking, and computer coding for grades nine through twelve by August 1, 2018. By the 2019-20 school year, each public and public charter high school must offer at least one computer science course.

In school year 2018-19, the department must employ one full-time employee to coordinate and lead the computer science education initiative, support teachers in designing instruction and assignments, design career pathways that connect students to postsecondary programs, offer teacher endorsements and professional development to new computer science teachers in a two to four week summer institute, and other duties to implement this initiative.

**Department of Education**. The department indicates that additional expenditures of $1,259,400 in FY 2017-18 and an additional expenditure of $100,000 in FY 2018-19 are necessary to implement the computer science education initiative. These additional expenditures for FY 2017-18 include the following:

$150,000 to develop grade appropriate standards for high school students;

$300,000 to develop guidelines outlining education and degree requirements for computer science teachers;

$300,000 to support K-12 academic and computer science teachers in developing project-based instruction and assignments;

$150,000 to design career pathways that connect students to postsecondary programs and career fields;

100,000 to offer two to four-week full-day summer institute to new computer science teachers;

$150,000 to assist districts in developing business partnerships to provide afterschool and extracurricular activities in computer science; and

$109,400 for one FTE to coordinate and lead the computer science education initiative.

Additional expenditures in FY 2018-19 include $100,000 for the continuation of the two to four-week full-day summer institute for new computer science teachers.

**Commission on Higher Education**. The bill tasks the commission with determining what, if any, financial incentives are needed by institutions of higher learning to design programs to prepare and credential computer science teachers. These activities are conducted in the normal course of the commission’s activities. Therefore, this bill will not have an expenditure impact on the general fund, federal funds, or other funds of the commission.

**Office of the Governor**. The bill requires the Office of the Governor to establish criteria and a process for designating a STEM region or community. The Office of the Governor indicates that these responsibilities will have no expenditure impact on the general fund, federal funds, or other funds of the office.

**Local Expenditure**

In FY 2019-20, each public and public charter high school must offer at least one computer science course. This may require the school districts to hire an additional computer science teacher for each of the 291 high schools. The department estimates that the average salary for these teachers would require additional expenditures of $44,880 for salary and $21,120 for employer fringe. These additional teachers would increase local school district expenditures by $19,206,000 in FY 2019-20.

Frank A. Rainwater, Executive Director

Revenue and Fiscal Affairs Office

**A** **BILL**

TO AMEND THE CODE OF LAWS OF SOUTH CAROLINA, 1976, TO ENACT THE “SOUTH CAROLINA COMPUTER SCIENCE EDUCATION INITIATIVE” BY ADDING SECTION 59‑29‑250 SO AS TO PROVIDE THE PURPOSE OF THE SECTION, TO PROVIDE THAT, BEGINNING WITH THE 2018‑2019 SCHOOL YEAR, PUBLIC HIGH SCHOOLS AND PUBLIC CHARTER HIGH SCHOOLS SHALL OFFER CERTAIN COMPUTER SCIENCE COURSEWORK, TO REQUIRE THE STATE BOARD OF EDUCATION TO ADOPT AND ENSURE IMPLEMENTATION OF GRADE‑APPROPRIATE STANDARDS FOR COMPUTER SCIENCE AND COMPUTATIONAL THINKING FOR PUBLIC SCHOOL STUDENTS IN KINDERGARTEN THROUGH TWELFTH GRADE, TO PROVIDE RELATED REQUIREMENTS OF THE STATE DEPARTMENT OF EDUCATION, TO PROVIDE REQUIREMENTS FOR THE OFFICE OF THE GOVERNOR TO ESTABLISH CRITERIA AND PROCESSES FOR DESIGNATING SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH COMMUNITIES AND REGIONS, AND TO PROVIDE RELATED REQUIREMENTS OF SUCH COMMUNITIES AND REGIONS.

Be it enacted by the General Assembly of the State of South Carolina:

SECTION 1. This act must be known and may be cited as the “South Carolina Computer Science Education Initiative”.

SECTION 2. Article 1, Chapter 29, Title 59 of the 1976 Code is amended by adding:

“Section 59‑29‑250. (A) The purpose of this section is to expand access to computer science learning experiences to all students because computer science supports literacy, math, problem‑solving, and technological skills, and advances productivity in every discipline, industry, and profession.

(B) Beginning in the 2018‑2019 School Year, each public high school and public charter high school must offer at least one computer science course which:

(1) is rigorous and standards‑based;

(2) meets or exceeds the curriculum standards and requirements established by the State Board of Education with input from business and industry;

(3) meets the needs of diverse students who will pursue postsecondary education or who will enter careers in computing and information technology upon graduation; and

(4) is made available in a traditional classroom setting, in a dual enrollment course, blended learning environment, online‑based, or other technology‑based format tailored to meet the needs of each participating student.

(C) Beginning in the 2018‑2019 School Year, the State Board of Education shall adopt and ensure implementation of grade‑appropriate standards for computer science and computational thinking, including computer coding, for all public school students in kindergarten through grade twelve. In developing the standards, the board shall include officials from higher education, business, and industry.

(D) Beginning in the 2018‑2019 School Year, the Department of Education will:

(1) employ one full‑time employee whose sole responsibility is to coordinate and lead the South Carolina Computer Science Education Initiative, provided the employee must have prior work experience in the computer science industry;

(2) support K‑12 academic and computer science teachers in designing interdisciplinary, project‑based instruction and assignments that engage students in applying literacy, math, and computational thinking skills to solve problems;

(3) design career pathways consisting of four or more courses that connect students to postsecondary programs, degrees, or postsecondary credentials in high‑demand career fields including, but not limited to, cybersecurity, information systems, informatics, computer engineering, and software development as identified by the Department of Commerce;

(4) offer teacher endorsements to new computer science teachers who complete a two to four‑week, full‑day summer institute;

(5) create clear pathways to teacher certification and licensure so as to ensure that all teachers, regardless of their backgrounds, have the appropriate content knowledge and pedagogical skills needed to teach standards‑based computer science and information technology curricula;

(6) leverage federal, state, foundation, and private sector funds to support intensive, ongoing professional development in computer science and information technology content knowledge and the pedagogical skills needed to manage diverse learners, create classroom assessments, and embed literacy and math in student‑driven, project‑based instruction and assignments;

(7) provide information and materials which identify emerging career opportunities in computer science and related fields to parents, students, teachers, and guidance counselors; and

(8) develop partnerships with business, industry, higher education, and communities to provide afterschool and extracurricular activities that engage students in computer science.

(E) Recognizing that successful implementation of computer science education requires effective instruction, the Department of Education shall develop guidelines for use by school districts and schools in identifying potential computer science teachers. Regardless of the teacher’s disciplinary background or level of teaching experience, a computer science teacher should have an inquiring mind, a passion for technology, and the capacity to deliver project‑based instruction. The Department of Education also shall develop criteria for postsecondary computer science teacher preparation programs. After developing the criteria, the department and the Commission on Higher Education shall identify institutions of higher education which have the capacity to fulfill the requirements of these programs, and encourage those institutions to apply for approval. The Commission on Higher Education shall determine what, if any, financial incentives are needed by institutions of higher education to design programs to prepare and credential computer science teachers.

(F)(1) To improve science, technology, engineering, and mathematics (STEM) education in the State, the Office of the Governor, beginning in fiscal year 2018‑2019, shall establish criteria and a process for designating a STEM community or STEM region. Consistent with federal law, STEM includes computer science.

(2) The criteria for designation as a STEM community or STEM region must include a requirement that educators, administrators, business leaders, students, parents, governmental officials, and business and industry groups within a community or region work to:

(a) create awareness;

(b) promote partnerships with education and industry;

(c) develop and execute action plans for improving STEM education and training;

(d) identify and acquire the needed resources to improve STEM education and training; and

(e) identify and accumulate STEM data within the community or region including, but not limited to:

(i) kindergarten through twelfth grade academic achievement;

(ii) the number of STEM‑related degree holders in the local workforce;

(iii) the number of STEM‑related degrees conferred; and

(iv) the number of STEM‑related certifications or credentials obtained.

(3) The region or community also shall develop a plan to recognize and promote success in both student and teacher accomplishments in the STEM area within the community or region.”

SECTION 3. If any section, subsection, paragraph, subparagraph, sentence, clause, phrase, or word of this act is for any reason held to be unconstitutional or invalid, such holding shall not affect the constitutionality or validity of the remaining portions of this act, the General Assembly hereby declaring that it would have passed this act, and each and every section, subsection, paragraph, subparagraph, sentence, clause, phrase, and word thereof, irrespective of the fact that any one or more other sections, subsections, paragraphs, subparagraphs, sentences, clauses, phrases, or words hereof may be declared to be unconstitutional, invalid, or otherwise ineffective.

SECTION 4. This act takes effect upon approval by the Governor.

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