

HOUSE OF REPRESENTATIVES STAFF ANALYSIS

BILL #: PCS for HB 265 Computer Coding Instruction

SPONSOR(S): PreK-12 Quality Subcommittee

TIED BILLS: None **IDEN./SIM. BILLS:** SB 104

REFERENCE	ACTION	ANALYST	STAFF DIRECTOR or BUDGET/POLICY CHIEF
Orig. Comm.: PreK-12 Quality Subcommittee		Brink	Duncan

SUMMARY ANALYSIS

The proposed committee substitute (PCS) promotes student access to education in computer science and related fields by requiring the Articulation Coordinating Committee to develop recommendations that identify, among other things:

- high school courses in computer science, including computer coding and computer programming, which may be used to satisfy state university admissions requirements for math and science;
- gaps in current policy, curricula, programs, and practices that inhibit students from pursuing postsecondary education and careers in computer science and related fields; and
- common definitions for terms such as computer coding and computer programming so that stakeholders at all educational levels can use the terms clearly.

In addition, the PCS requires the Commissioner of Education to establish academic standards for computer science, coding, and programming and identify high school-level courses that incorporate the standards in the Course Code Directory.

The PCS requires the Department of Education to annually report to the Board of Governors and the Legislature:

- the courses identified in the Course Code Directory by the commissioner in accordance with the PCS;
- the number of students, by district, including the Florida Virtual School, who are enrolled in a course identified in the Course Code Directory by the commissioner in accordance with the PCS; and
- the number of individuals who hold a valid educator certificate in computer science or a related field.

The PCS requires the State Board of Education to work with the Board of Governors and school districts to develop strategies for recruiting and supporting computer science teachers.

The PCS does not appear to have a fiscal impact.

The PCS takes effect July 1, 2017.

FULL ANALYSIS

I. SUBSTANTIVE ANALYSIS

A. EFFECT OF PROPOSED CHANGES:

Present Situation

Computer Science and Technology Instruction

Public schools are required to provide students in grades K-12 opportunities for learning computer science including, but not limited to, computer coding and computer programming.¹

Such opportunities may include:²

- instruction regarding computer coding in elementary and middle school;
- instruction to develop computer usage and digital literacy skills in middle school; and
- courses in computer science, computer coding, and computer programming in high school, including opportunities to earn industry certifications related to the courses.

The law allows high schools to provide students opportunities to satisfy certain math and science graduation requirements by taking computer science courses of sufficient rigor and earning a related industry certification.³ To qualify, the course must be in the area of computer science or 3D rapid prototype printing and the Commissioner of Education must identify the course and the related industry certification in the Course Code Directory.⁴

A qualifying computer science course may satisfy up to one mathematics or science course credit, so long as the course is not Algebra I or higher-level mathematics or Biology I or higher-level science. A qualifying 3D rapid prototype printing course may satisfy up to two mathematics course credits, except for Algebra I.⁵

In 2016, the State Board of Education revised the Next Generation Sunshine State Standards to include K-12 computer science standards.⁶ Currently, courses in computer coding are listed in the Career Technical Education Program and Course Listing section in the Course Code Directory.⁷

Articulation Coordinating Committee

The Articulation Coordinating Committee is an advisory body appointed by the Commissioner of Education in consultation with the Chancellor of the State University System.⁸ The committee makes recommendations related to statewide articulation policies and issues regarding access, quality, and reporting of data to the Higher Education Coordination Council, the State Board of Education, and the Board of Governors (BOG).⁹ The committee comprises one member representing students and two members each representing:

- the State University System;
- the Florida College System;
- public career and technical education;
- K-12 Education; and

¹ Section 1007.2616(1), F.S.

² Section 1007.2616(1), F.S.

³ Section 1007.2616(3), F.S.

⁴ *Id.*

⁵ *Id.*

⁶ See rule 6A-1.09401(1)(n), F.A.C.

⁷ Staff of the Florida Department of Education, *Staff Analysis of Senate Bill 468* (2016).

⁸ Section 1007.01(3), F.S.

⁹ *Id.*

- nonpublic postsecondary education.¹⁰

The Office of K-20 Articulation, housed within the Department of Education, provides administrative support for the committee. Pursuant to the law, the committee helps to coordinate ways for students to move easily from one educational institution to another and from one level of education to the next.

Accordingly, the committee must:

- monitor alignment between exit requirements and admissions requirements among education systems;
- propose guidelines for interinstitutional agreements for articulation of students among educational institutions;
- recommend dual enrollment and high school subject area equivalencies for state board and BOG approval;
- review the statewide articulation agreement and recommend revisions;
- review the statewide course numbering system, levels of courses, and the application of transfer credits to identify student transfer and admissions difficulties;
- publish courses that meet common general education and degree program prerequisite requirements;
- foster timely collection and reporting of data to improve the K-20 education performance accountability system;
- recommend roles and responsibilities of public education entities in interfacing with the computer-assisted student advising system; and
- make recommendations on the cost and requirements to develop and implement an online system for collecting and analyzing data relating to requests for transfer of credit by postsecondary education students.¹¹

Effect of Proposed Changes

The proposed committee substitute (PCS) promotes student access to education in computer science and related fields by requiring the Articulation Coordinating Committee to develop recommendations that identify:

- high school courses in computer science, including computer coding and computer programming, which may be used to satisfy state university admissions requirements for math and science.
- common academic and technical skills needed for students to help meet projected labor market demands in computer science, information technology, and related fields in Florida.
- how middle and high school students, including underrepresented and nontraditional students, can be encouraged to pursue further studies and careers in computer science, information technology, and related fields.
- secondary course sequences which prepare students to succeed in postsecondary educational programs in computer science, information technology, and related fields.
- gaps in current policy, curricula, programs, and practices that inhibit students from pursuing postsecondary education and careers in computer science and related fields.
- appropriate educator qualifications and computer science pedagogy to maintain technologically current instructional knowledge and practices in teacher preparation programs.
- common definitions for terms related to computer science, including terms such as computer coding and computer programming, for consistent use across the Florida K-20 education system.

The committee must report its recommendations to the Board of Governors and the Legislature by December 31, 2018.

¹⁰ *Id.*

¹¹ *See* s. 1008.01(3)(a)-(i), F.S.

The PCS requires the Commissioner of Education to identify high school-level courses that incorporate the computer science standards in the Course Code Directory by June 30, 2018.

The PCS requires the department to annually report to the Board of Governors and the Legislature:

- the courses identified in the Course Code Directory pursuant by the commissioner in accordance with the PCS;
- the number of students, by district, including the FLVS, who are enrolled in a course so identified; and
- the number of individuals who hold a valid educator certificate in computer science or a related field.

The PCS requires the state board to consult with the Board of Governors and school districts to develop strategies for:

- recruiting qualified teachers to provide computer science instruction;
- updating computer science educator certification requirements;
- providing appropriate professional development to maintain technologically current instructional knowledge and practices in the school districts; and
- identifying and streamlining traditional and alternative pathways toward computer science educator certification.

If a student enrolls in an identified course that satisfies any FCS or SUS admission requirements for foreign language, mathematics, or science, the student may not know if the course would satisfy similar admission requirements at a private or out-of-state postsecondary institution. Accordingly, the PCS requires the school district in such situations to notify the student that he or she should contact any out-of-state or private postsecondary institution to which the student is applying and inquire whether the course credit satisfies any of the institution's admissions requirements.

B. SECTION DIRECTORY:

Section 1. Amends s. 1007.01, F.S., requiring the Articulation Coordinating Committee to make recommendations related to computer science instruction; providing requirements for such recommendations; requiring the committee to report its findings and recommendations to the Board of Governors of the State University System and the Legislature; providing for expiration of certain committee duties.

Section 2. Amends s. 1007.2616, F.S., requiring the Commissioner of Education to develop certain standards and identify certain courses in the Course Code Directory; requiring the Department of Education to annually report certain information to the Board of Governors and the Legislature; requiring the State Board of Education, the Board of Governors, and school districts to develop strategies relating to computer science educator certification and teacher recruitment.

Section 3. Provides an effective date.

II. FISCAL ANALYSIS & ECONOMIC IMPACT STATEMENT

A. FISCAL IMPACT ON STATE GOVERNMENT:

1. Revenues:

None.

2. Expenditures:

None.

B. FISCAL IMPACT ON LOCAL GOVERNMENTS:

1. Revenues:

None.

2. Expenditures:

None.

C. DIRECT ECONOMIC IMPACT ON PRIVATE SECTOR:

None.

D. FISCAL COMMENTS:

None.

III. COMMENTS

A. CONSTITUTIONAL ISSUES:

1. Applicability of Municipality/County Mandates Provision:

Not applicable.

2. Other:

None.

B. RULE-MAKING AUTHORITY:

None.

C. DRAFTING ISSUES OR OTHER COMMENTS:

None.

IV. AMENDMENTS/ COMMITTEE SUBSTITUTE CHANGES

Not applicable.