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LEGISLATIVE EDUCATION STUDY COMMITTEE
BILL ANALYSIS
54th Legislature, 1st Session, 2019

Bill Number	<u>HB341/aHEC</u>	Sponsor	<u>Sariñana/Akhil/Candelaria</u>
Tracking Number	<u>.211585.2</u>	Committee Referrals	<u>HEC/HAFC</u>
Short Title	<u>Computer Science Development Grant Program</u>		
Analyst	<u>Ochoa</u>	Original Date	<u>2/4/19</u>
		Last Updated	<u>2/12/19</u>

BILL SUMMARY

Synopsis of HEC Amendment

The House Education Committee Amendment to HB341 (HB341/aHEC) strikes and replaces language in order to maintain consistent language throughout the bill. Section 3(D) strikes through “A school district or state chartered charter school” and replaces the language with “An eligible entity”. The same change is made in Section 3(E)(1). “Eligible entities” are clearly outlined as school districts, state chartered charter schools, institutions of higher education, and regional education cooperative (RECs) in Section 3(B) of the original bill. The amendment does not change the impact of the bill.

Synopsis of Original Bill

House Bill 341 (HB341) would create the Computer Science Professional Development Act that would make funds available to school districts, charter schools, institutions of higher education, and Regional Education Cooperatives (RECs) to develop and implement computer science professional development programs for teachers.

FISCAL IMPACT

The bill appropriates \$500 thousand from the general fund to the Computer Science Program Fund for expenditure in FY20 and subsequent fiscal years for the purposes of that fund. Any unexpended or unencumbered balance remaining at the end of a fiscal year shall not revert to the general fund. New Mexico State University (NMSU) analysis states the amount of funding is significant but not unreasonable. NMSU states the cost of a one-week state-wide professional development session would cost \$50 thousand, not including the cost of implementation, curriculum, and recruitment.

SUBSTANTIVE ISSUES

Definitions. HB341/aHEC would create the Computer Science Professional Development Act that would provide funds for school districts, charter schools, institutions of higher education, and RECs to develop and implement computer science professional development for teachers.

HB341/aHEC includes three definitions. “Computer science” would be defined as the study of computers and algorithmic processes including principles, hardware and software design, implementation, and societal impacts. “Computer science course” would be a course that teaches computer science concepts as a standalone course or integrated in the core curriculum. “Computer science professional learning” would be professional learning activities that clarify the foundational concepts within computer science, teach research-based practices, and are intended for teachers with a variety of experience-levels in the field of computer sciences.

Grant Application. The Public Education Department (PED) would be required to administer the Computer Science Program Fund. The department would be required to grant funds to eligible entities who provide high-quality computer science professional learning for kindergarten through 12th grade teachers, credentialing and endorsement programs, computer science programs that include mentoring and coaching, resource development to support implementation — including creating a resource bank, and student recruitment.

Reporting. HB341/aHEC would require award recipients to annually report to PED the number of teachers prepared, number of students who participated in computer science classes, student demographic information, the proportion of teachers teaching computer science among professional development participants, and professional development documentation including agendas and school participation rates. University of New Mexico analysis states there are no measures in place to determine the success or impact of programs implemented under HB341/aHEC.

ADMINISTRATIVE IMPLICATIONS

PED would be required to administer the provisions of HB341/aHEC.

TECHNICAL ISSUES

HB341/aHEC provides a definition for a “computer science course” and while the bill uses “course” throughout a majority of the bill, on page 5, lines 16-17, the bill outlines a data point required for reporting as “the number of students who participated in computer science classes”. It appears the word “course” and “class” are used interchangeably.

OTHER SIGNIFICANT ISSUES

New Mexico Computer Science Standards. The October, 30, 2018 issue of the *New Mexico Register* contained a proposed new rule to adopt New Mexico Science Standards. The proposed rule would require school districts and charter schools who teach computer science to adhere to the adopted standards. The proposed standards were published by the Computer Science Teachers Association (CSTA) and the Association for Computing Machinery. If adopted, the new standards would be effective July 1, 2019.

The standards are designed to introduce computer science concepts in computing systems; networks and the internet; data and analysis; algorithms and programming; and impacts of computing. These components generally align to the professional development requirements in HB341/aHEC.

As early as kindergarten, students in computer science-related lessons should be able to describe basic hardware and software problems or write programs with simple sequences and loops to

express ideas. In third through fifth grade, the standards build on the foundational concepts and ask students to perform higher order critical thinking, like describing real-world cybersecurity issues and organizing and presenting data to highlight relationships and support a claim. In sixth through eighth grade, the standards evolve in complexity to incorporate more design elements, asking students to systematically identify and fix issues in computing devices, collect and transform data to make it more useful and reliable, and design programs collaboratively with a development team. Ninth and 10th grade students would be responsible for fully understanding complex computer science principles, and the standards include an optional level for 11th and 12th grade students designed to prepare students for a career in a computer science-related field.

Implementation. Because the CSTA computer science standards would apply to all courses in which computer science is taught, school districts and charter schools wishing to offer computer science courses may be required to make significant investments in professional development and instructional materials. HB341/aHEC may help in offsetting some of these costs. NMSU analysis states any assistance in implementation of computer science would help New Mexico meet future and current workforce needs as New Mexico is home to two national labs that consistently struggle to find qualified, local individuals to employ.

Vertical Alignment. Students in New Mexico are not required to take computer science courses or curricula. However, the CSTA standards are vertically-aligned to build on foundational concepts as a student progresses through school. The standards are designed to increase in difficulty based on a student's grade level rather than skill level, creating the assumption that a student taking an introductory computer science course in ninth grade already has a fairly deep understanding of computer science concepts.

RELATED BILLS

HB 114, NM Tech Supercomputing Challenge Program
SB 310, Supercomputing Challenge

SOURCES OF INFORMATION

- LESC Files
- New Mexico State University (NMSU)
- University of New Mexico (UNM)

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