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Name of Organization: **Computer Science Subcommittee** of the Science, Technology, Engineering and Mathematics (STEM) Advisory Council

Date and Time of Meeting: Thursday, March 23, 2017 at 1:00 P.M.

Place of Meeting: Governor's Office of Science Innovation and Technology (OSIT)
100 North Stewart Street, Suite 220
Carson City, NV 89701

Please use the following numbers to join the conference call:

North: 775-687-0999 or

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MINUTES

- I. Call to Order/Roll Call
Mark Newburn, Chair

Chair Newburn called the meeting to order at 1:00 p.m.

Members Present: Mark Newburn; Dave Brancamp; Melissa Scott; Kimberly Moody; Kris Carroll; Dr. Andreas Stefik; Dr. Pavel Solin; Frank Matthews

Members Excused: Dr. Kimberly Vidoni, Rob Sidford

Guests Present: Cindi Chang, Information Tech Instructor with Clark County School District (CCSD)

Staff Present: Brian Mitchell; Debra Petrelli

- II. **Public Comment** (No action may be taken upon a matter raised under public comment period unless the matter itself has been specifically included on an agenda as an action item.)

There was no public comment.

- III. **Welcoming Remarks**
Mark Newburn, Chair

Chair Newburn welcomed everyone. He had wished the meeting could have been sooner, but was waiting to hear on the Expanding Computing Education Pathways (ECEP) Grant.

- IV. **Discussion Regarding ECEP Grant and Computer Science Standards** (For information only)

Mark Newburn, Chair

Dave Brancamp

Cindi Chang, Information Tech Instructor with Clark County School District

Chair Newburn discussed the Expanding Computing Education Pathways alliance (ECEP). He discussed that in January 2017, the Council to establish academic content standards gave the Department of Education approval to develop direct standards in computer science (CS). We had the approval, we just did not have the money. There was a new program wherein ECEP funded states to do a statewide assessment in CS then hold a summit where they pull various stakeholders from across the state together. He said \$25,000 was funded to ECEP to write the standards. He added that this cost pays for the transportation and meals to get members to the writing session.

Chair Newburn said the standards are important because they are the State's statement on what every kid should know in a particular subject and in this case, computer science at various grade levels. Now that we have the approval and funding we have started the planning process to do the standards. The Department of Education will be looking to this Subcommittee to pull people to assist in the process.

Mr. Brancamp further discussed the pathway that will be involved. He said we will be asking for members from this task force but also people in the community that may be interested in the process to help out. We need to have a broad range of participants around the state in K-12 education. We will need elementary, middle and high school teachers, administrators, parents, businesses and higher education stakeholders on this team. At this

point we are looking at having pre-training on the framework and the FTE work. Currently the tentative date is May 10, 2017 through May 12, 2017, most likely in Las Vegas, for the group to meet and start the initial writing. Depending on how that goes, we should know by May 12, 2017 how much longer we need. He pointed out once the writing is done, an internal team, consisting of "Critical Friends," would take a look at the document and review what was written by offering suggestions and ideas on format, etc., then send it back to this Subcommittee for a chance to respond. He said once we have done those steps and feel we have a good document, it must be posted as a public document for thirty (30) days on the Department of Education's website. Once we receive feedback, this Subcommittee can review and make adjustments as needed. By September of 2017, if all goes well, we hope to present the Standards to the Academic Standards Council to begin the process of approval. They in turn generate a motion to the State Board of Education for approval, possibly in October or November of 2017. At this point, Dr. Steve Canavero, Ph.D, Superintendent of Public Instruction at the Department of Education will have a workshop for additional public comment. The last step would include going to the Legislative Interim Committee on Education to make final suggestions and either accept it or send it back to the State Board of Education with recommendations.

Mr. Brancamp introduced Cindi Chang, Information Tech Instructor with Clark County School District, and said she will take on the role within the Department of Education as our computer science lead, starting on May 1, 2017 and will help to guide us with her expertise.

Chair Newburn stated the hope, prior to the actual writing is to have one or two video conference meetings to get everyone's background information. He added Code.org has already committed to do a video presentation on the CS framework. We are trying to talk to the Computer Science Teachers Association (CSTA) to get a presentation on their standards as well. He added there are other states that have already adopted standards, i.e. Massachusetts and Arkansas which were adopted pre-K12 CS framework. He added that Carolina has adopted a set of standards, which are post-framework standards. Other states are looking at these. Nevada may get a chance to look at what other states have done as well.

Ms. Chang commented we need to come up with a date for pre-training. She said she contacted Deborah Seehorn, Curriculum and Certification Committee of the Computer Science Teachers Association (CSTA), and it was communicated that their standards will not be done until July 2017, but they may give us a draft. She said it was suggested we do not work off the interim standards currently on their web site. She suggested that Nevada create a computer science webpage on the Department of Education's (DOE) website announcing the process of developing standards along with other computer science projects currently being worked on. She said Code.org uses these sites and it would be good public relations for Nevada, such as the

Governor's Partnership announcement. The Subcommittee discussed dates in May, 2017 prior to the May 10th deadline for pre-training before the writing days.

The Subcommittee discussed, with framework being really new, whether any other states have already developed framework. South Carolina was discussed. Chair Newburn pointed out there is a Google group for states looking at writing standards. He added there are some states in this process the same as we are. We should find out who they are. He added he could post on the Google group. He said Code.org has been posting on that site to keep all states up to speed on where each state is on standards. If we could see how other states have approached new standards with this framework as opposed to old standards, it would be very helpful. It was agreed.

Chair Newburn commented the Standards become very important because they drive a lot of different things. They have become the lever that we can use on the one-half credit high school requirement to start pushing the computer science content into that core. He said for this group, over the next year, the standards is one of two big items we have on our plate.

This is a great opportunity for us. Typically you do not get an opportunity to write the first set of standards for an academic subject for your state.

V. Legislative Session Update (For information only)
Mark Newburn, Chair

Chair Newburn discussed Senate Bill 200 (SB 200), which revises provisions relating to instruction in computer education and technology. He said the first hearing was on February 28, 2017, which he and Senator Joyce Woodhouse presented. He further discussed the legislative process and added that nobody spoke against this bill or in neutral during the first hearing. There currently is nothing else scheduled on the bill at this time. He said this bill does carry a Fiscal Note by the State Public Charter School Authority, Department of Health and Human Services, Child and /Family Services, Nevada System of Higher Education, Local Government, and the Nevada Department of Education. He added that the cost associated with this bill is really the only thing that might "kill" it in legislation.

Chair Newburn said one component of SB 200 is the addition of computer science standards to be included under the umbrella of computer technology education. There are currently standards in computer and technology education and the advisors and lawyers at the Legislative Council Bureau (LCB) for the legislature decided this is where it should go. He added, there is a piece about developing computer science standards, another requiring all high schools, including charter schools, to offer at least one computer science course with the caveat the course can be taken by students online to meet requirements. He referred to another requirement outlined in SB 200 Section

3, which reads “also provides that if the State Board prescribes a course in computer education and technology for pupils in high school, at least 50 percent of that instructional time for the course must be dedicated to computer science and computational thinking.” Other wording of the bill requires K-5 to offer some instruction for students before they go to sixth grade in computer and technology.

Dr. Stefik pointed out that students with disabilities are not included and asked if they should be included as well. Chair Newburn said that suggestion can be made to the bill’s author. Dr. Stefik referring to Section 3 of SB 200, pointed out most technology that exists is not accessible to students with disabilities and asked what would be done for a student with a disability if the technology is not available at a school. Chair Newburn requested from Dr. Andreas Stefik, not only his computer expertise with the standards, but also as an advocate, he said even as the K-5 standards are laid out, we need the appropriate wording for students with disabilities to be included. The group continued the discussion on the implementation process and how it will be paid for.

Chair Newburn further pointed out the intent before sixth grade is basic computer usage, which is a one-half credit graduation requirement and is taught in middle school. However, students in elementary school are now taking online tests. He added they need part of that training in elementary school to successfully take the tests. Again, the intent is that the elementary schools and districts understand they cannot wait around until that middle school course to teach the student this information. Ms. Scott added they are referring to basic keyboarding and there is technology available, and is required by federal law.

Chair Newburn pointed out the State may be looking at this Subcommittee to make recommendations. The whole issue of appropriate level for licensing has come about. He said in terms of the training or special development for the courses, we have an agreement with Code.org and the College Board to cover professional development for a certain number of teachers. He pointed out the issue of certification will need to be addressed by this Subcommittee and will need to come up with recommendations. He said this issue was brought up by Clark County when they spoke in favor of SB 200, wherein they asked what certification and endorsements are required to teach the various courses. Mr. Mitchell pointed out that Code.org is currently working on a white paper they are going to release at the MassCan (Massachusetts Computing Attainment Network) Conference in Cambridge, Massachusetts on April 3, 2017 through April 4, 2017 about this very specific topic. They will provide a number of recommendations to states on how to do this very thing. He said he believes we should be provided with some guidance or resources that we can draw on in the near future to help in making some recommendations. He said after a call to a colleague in Idaho, he is of the understanding that Idaho has done some very innovative things in this area.

He said he will report back to this Subcommittee that information on their solution. Perhaps this will give us some inspiration on what we should do in Nevada.

Chair Newburn pointed out the primary sponsor of SB 200 is the Chair of the Senate Finance Committee and Assembly Democrats have put together what is called the “Blueprint for Nevada” and this bill is one of their items. Hopefully this bill will get through the Legislature and make it to the Governor for signing. He pointed out on the Fiscal Notes, the school districts and charter schools do not have a good idea of how to cost this bill. For instance Washoe County suggested it would cost them \$10,000 and the Charter School District, which is smaller than Washoe County, said it would cost them \$6 million. He said Code.org had sent him a spreadsheet, which he will provide to the Subcommittee, which is a “model” worksheet they use to estimate costs for expanding computer science. Chair Newburn added this Subcommittee may have to assist the Legislature with some of these issues, i.e. what it will cost, as well as the agreement with Code.org, the College Board to provide professional development and looking at existing funding mechanisms such as The Great Teaching and Leading Fund. Chair Newburn pointed out there is a lot of confusion regarding the fiscal notes and the debate regarding the cost could hang this bill up in the Legislature.

Chair Newburn said another factor is the possibility of having an online course, because some schools, especially rural, having only a few students who want to take this course, it may not be cost effectiveness for one dedicated teacher for so few students. If an online course was developed, these high schools could then meet this requirement. Chair Newburn added the bill would allow a computer science course selected by the state board to count as either a third science credit or a fourth math credit.

The Subcommittee discussed necessary equipment lists for computer science courses. Ms. Moody pointed out that Clark County does have equipment lists put together from a couple of years ago which could easily be updated and whatever comes out of the code.org initiative could be adjusted as well. She said it has been asked what is the licensing and who can teach what, as we go forward in offering computer science courses. She said currently in Clark County we have some facet of everything, including computer literacy in middle school and Exploring Computer Science (ECS) at the high school level. She said at their last training, it was discuss to start really pushing the Computer Science Discovery at the middle school level. She said moving kids in the right direction would be huge in Clark County.

Dr. Solin asked about teacher certification and where the Nevada Ready 21 program stands compared to Code.org or other initiatives in Nevada. Chair Newburn could not speak for Nevada Ready 21, but said we have been funded to do the standards and are currently looking for individuals interested in working on the standards. He added that requirements for the Standards

should be curriculum independent, which would be up to the school districts, principals, and teachers. From the Standards point of view it is the “what” and the school districts the “how.” Therefore, this Subcommittee’s goal with the Standards is make it neutral or agnostic. He said currently Nevada has some school districts using the Nevada Ready 21 Chromebooks, so to meet the Standards they should be able to use the curriculum that works with the platform they already have.

Chair Newburn said he would keep the Subcommittee up to date as SB 200 moves through the Legislature. He added that as a group we may need to provide assistance with the cost and various issues. Currently we can only base this on estimates, because the Computer Science Standards are not yet complete. He said Code.org will do an initial presentation on the K-12 framework. We are trying to get CSTA to do a presentation on their standards, then we will look at other state standards. Think about costing and what it would take to put together an online course, which is what Arkansas has done. We may have to do something similar, or find an existing course to be allowed to be taken as dual credit. He said Harvard has released their CS50 course, which they claim is compatible with Computer Science Principals and it is online and free, whereas Arkansas developed their own online course.

VI. Next Steps (For information only)
Mark Newburn, Chair

Ms. Moody said a good first step would be to contact Nevada Learning Academy (previously known as Virtual High School), at Clark County School District (CCSD) which is an online public secondary school. Maybe they could assist with cost estimating. She added in recent conversations with the Nevada Learning Academy, they have expressed a desire to increase the amount of CTE course offerings. This might be good timing for collaboration. Mr. Carroll said he was the Curriculum Coordinator at Nevada Learning Academy about four years ago and discussed courses and some at no cost to students. Chair Newburn suggested it would be conceivable if they had an approved computer science course, a student from a rural area high school could take the course online.

The Subcommittee continued discussions regarding Canvass Learning Management System (LMS) and online classroom software used by CCSD, where teachers can post content, discussion, and assessments, as well as where students can extend their learning outside of the normal classroom and school day. It was suggested that a portion of the The Great Teaching and Leading Fund dollars be offered as grants to organizations that would use those grants to develop and offer an online computer science course that would meet the requirements of schools that do not have the capacity to offer it themselves. Ms. Scott said she would learn more about those funds to see if that is a possibility.

Chair Newburn said we will need answers regarding online courses and the cost. We need to keep in mind the development cycle for the computer science course is an eighteen (18) month cycle. There are ways to speed it up, but would take a huge amount of expertise and money. Chair Newburn pointed out it will be a year at least before this goes into effect and there will be a transition period.

VII. Consider Agenda Items for the Next Meeting (For possible action)
Mark Newburn, Chair

Chair Newburn pointed out that depending on where SB 200 is in legislation, it may drive some more discussions at the next meeting, especially regarding cost. He suggested a conversation on endorsement as well as a de-briefing on the MassCan meeting in April, 2017, for the next meeting. He said by then we will have heard Code.org recommendations for endorsement and we can discuss our initial thoughts, as well as an update on the Standards.

VIII. Next Meeting Date will be determined at this meeting.
Mark Newburn, Chair

It was unanimous to send out a Doodle Poll to set the next meeting.

IX. Public Comment (No action may be taken upon a matter raised under public comment period unless the matter itself has been specifically included on an agenda as an action item.)

There was no public comment

X. Adjournment

Chair Newburn adjourned the meeting at 2:15pm