Course number: PRDV 74827
Title: Young Kids Who Code
Credit: 1
Location: Online
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Note: When contacting me by email, please state the course name in the subject area.

Course Overview

Course Description:
This course is designed for preschool-K to grade 5 teachers and specialists. Each module, with its special topics, examines the impact of learning to code, has on student's K to grades 5.

Participants will explore what coding is, why kids should code, and the tools and strategies available to bring coding to the classroom. The focus is on how teachers can use coding to make learning more meaningful in the areas of Math, Science & Technology, English Language Arts and Literacy, as this is not a programming course.
Participants will become familiar with the Digital Literacy and Computer Science Framework, Massachusetts Curriculum Frameworks, and the NAEYC's position statement on Technology & Interactive Media.

Emphasis is placed on but not exclusive to the following:

The NAEYC's position statement on Technology & Interactive Media.
Kindergarten through grade 5 standards integrate all seven practices (1. Creating, 2. Connecting, 3. Abstracting, 4. Analyzing, 5. Communicating, 6. Collaborating, 7. Researching.

Standards in this grade span ask students to demonstrate the ability to:

Kindergarten to Grade 2 - Computational Thinking (CT)
Explore abstraction through identification of common attributes.
Create and enact a simple algorithm.
Create a simple computer "program."
Use basic models and simulations.

Grade 3 to 5 Computational Thinking (CT)
Create a new representation and breakdown a larger problem into sub problems.
Write, debug, and analyze an algorithm.
Understand databases and organizing and transforming data.
Write, debug, and correct programs using successively sophisticated techniques.
Create a model and use data from a simulation.

Participants will explore connections across Literacy, Math and Science Curriculum Frameworks. Specifically, connections are made in the area of Computational Thinking, K-2CT and 3-5CT. Note, this is not a programming course.

Participants will explore the resources the content within each weekly module, and complete all readings (text, audio, visual) prior to the online discussions.

Participants will come prepared for in-depth discussions and ready to participate actively in the online discussion forum, from the start to the completion of the week. A final project is required.

Course Content:
Week 1 - Module: What Exactly is Coding?
Week 2- Module: Why Should Kids Code, Why Should We Care?
Week 3- Module: Teaching Kids Coding Without a Computer
Week 4- Module: Teaching Kids Coding Using Computers

Student Outcomes
Students will be able to:
Define coding and its connection to the Digital Literacy and Computer Science Massachusetts Curriculum Frameworks
Explore connections across Literacy, Math and Science Curriculum Frameworks.
Describe and discuss why kids should code.
Examine how to apply this information to teaching and learning
Discuss and explore ways to incorporate coding across curriculum with and without computers

Grading Components:
80%= the readings (tied to the number of quality posts (see Discussion Board Rubric)
20% = Final Project: PowerPoint, Prezi, Podcast or Paper
100%

Grading/Grade Points
A, A- (95-100 A, 90-94 A-) Indicates that the level of work is of superior quality and exceeds specific guidelines in one or more ways. Work and discussion posts exceed expectations.
B+, B, B- (87 - 89 B+, 83 - 86 B, -80 – 82, B-) Indicates that the course work has met the requirements and was judged acceptable. Work and discussion posts meet expectations.
C+, C, C- (77 – 79 C+, 73-76 C, 70-72 C) indicates that the level of work did not adequately meet the requirements. D+ 69-67 D 66-63 D- 62-60 F 59-0

How to use the Guiding Questions
Each weekly discussion will be based on the required readings/viewings. Each weekly Discussion Board will begin with one or more questions, referred to as *Guiding Questions or GQ.* Discussions boards run week to week, once a week closes, posts cannot be made up. Please see the **Rubric for Asynchronous Discussion Participation.**
Please see the **Rubric for Asynchronous Discussion Participation.**

Week 1 - Module: What Exactly is Coding?
Required readings and videos
McKibben, S. (2017, July) ASCD. Education Update. Volume 59. Number 7. A Flight Plan for Coding in PreK and Beyond. Retrieved from http://www.ascd.org/publications/newsletters/education-update/jul17/vol59/num07/A-Flight-Plan-for-Coding-in-PreK-and-Beyond.aspx on January 9, 2018.

Add Coding to Your Elementary Curriculum… Right Now. (March, 2015). Edutopia Blog. Retrieved from https://www.edutopia.org/blog/add-coding-elementary-curriculum-now-matt-harrell on January 9, 2018.

A Video Game That Teaches You How to Code. (August, 2015). Retrieved from https://www.youtube.com/watch?v=OxYW0bqtiTo on January 9, 2018.

Digital Literacy and Computer Science Framework. (2016). Massachusetts Curriculum Frameworks. Retrieved from http://www.doe.mass.edu/frameworks/ on January 9, 2018.

Week 2- Module: Why Should Kids Code, Why Should We Care?
Required readings and videos
Ford, M. (2017, October 19). Coding Across the Curriculum. Retrieved from https://www.edutopia.org/article/coding-across-curriculum on January 9, 2018.

Goldberg, M. F. (1991). Portrait of Seymour Papert. Educational Leadership. Retrieved from http://www.ascd.org/ASCD/pdf/journals/ed_lead/el_199104_goldberg.pdf, on January 9, 2018.

Rezac, D. (2017). Tynker For Math and Language Arts Teachers? Absolutely! Retrieved from https://www.tynker.com/blog/articles/ideas-and-tips/coding-at-school/is-tynker-for-math-and-language-arts-teachers-absolutely, on January 9, 2018.

10 Reasons Kids Should Learn to Code. (September 07, 2017). Tynker Blog. Retrieved from https://www.tynker.com/blog/articles/ideas-and-tips/10-reasons-kids-should-learn-to-code on January 9, 2018.

Liukas, L. (February, 2016). A delightful way to teach kids about computers. Retrieved from https://www.youtube.com/watch?v=vcxwcWuq7KQ on January 9, 2018.

Week 3- Module: Teaching Kids Coding Without a Computer
Required readings and videos
Merrill, S. (December 7, 2017). The Future of Coding in Schools. Retrieved from https://www.edutopia.org/article/future-coding-schools on January 9, 2018.

Harper, D. and Martinez, S. (November, 2008). Volume 66. Number 3. Giving Students Ownership of Learning Pages 64-69. Working with Tech-Savvy Kids. Retrieved from http://www.ascd.org/publications/educational_leadership/nov08/vol66/num03/Working_with_Tech-Savvy_Kids.aspx on January 9, 2018.

Shellenbarger, S. (February. 9, 2016). New Ways to Teach Young Children to Code. Even parents who don't know programming are using games, apps to teach basic skills. The Wall Street Journal WSJ. Retrieved from https://www.wsj.com/articles/new-ways-to-teach-young-children-to-code-1455049777 on January 9, 2018.

Video -Offline coding in Kindergarten 4:42. (March 31, 2017). Retrieved from https://www.youtube.com/watch?v=tf-z99Nyc18 on January 9, 2018.

What is an algorithm? Dancing Robot, Coding for Kids, Robotics, Mundo Lanugo and Google. June 2, 2017. Retrieved from https://www.youtube.com/watch?v=XtIw8iPhGug on January 9, 2018.

Week 4- Module: Teaching Kids Coding Using Computers
Required readings and videos

Lynch, M. (February, 2017). Why Learning to Code Is So Important for Children. Retrieved from http://www.theedadvocate.org/why-learning-to-code-is-so-important-for-children/ on January 9, 2018.

Resnick, M. (January, 2013). Let's teach kids to code. Retrieved from https://www.youtube.com/watch?v=Ok6LbV6bqaE on January 9, 2018.

Computer Coding for Elementary School Students using ScratchJr. (April, 2016). Retrieved from https://www.youtube.com/watch?v=UQdGJRGPI1E on January 9, 2018.

Coding in Kindergarten. (April, 2016). Retrieved from https://www.youtube.com/watch?v=gmRMniPyNfM on January 9, 2018.

Discussion Board Rubric for Asynchronous Discussion Participation

A Quality of Postings Indicator

Asynchronous discussion enhances learning as participants share their ideas, perspectives, and experiences with the class. Participants develop and refine their thoughts through the writing process, plus broaden their classmates' understanding of the course content. Each weekly discussion is organized around the Guiding Questions, which participants must respond to.

Post your thoughts and provide supporting evidence using the readings, viewings, and audios (RVA). DO NOT just give the facts. Posts MUST reflect how the RVAs have impacted upon your thinking and the work that you do.

Participants will use the following feedback to improve the quality of their discussion contributions.

Grading Discussion Board Posts

Discussion postings that meet all criteria for a grade level will receive the highest points possible at that level. Postings that meet mixed levels of criteria will receive a score within the point range of the appropriate levels.

Participation in discussion activities can only be measured by the date on the discussion posting. For example, participating 3 times during the week is measured by postings on 3 different days; there may actually be 5-6 postings, but participation only occurred 3 times during the week.

Discussion Board Rubric

There are five criteria, the Initial Post, Additional Posts, Details in Each Post, The Quality of Information in Response to Other's Posts, and The Frequency of Weekly Discussion Posts. The

highest amount of points that can be earned in one week, for a score of excellent, is a score of 20 points.

First Criteria
First criteria, the Initial Post, responds to the Guiding Question or GQ. This is your response to the question following the completion of readings. The initial post fully addresses the Guiding Question or questions. The post demonstrates a proficient understanding, and the score would be 4 points.

An Initial Post that addresses the topic Guiding Question or GQ and shows above average understanding scores 3 points.

An Initial Post that addresses the topic Guiding Question or GQ and shows adequate understanding receives an adequate score of 2 points.

An Initial Post that addresses the topic Guiding Question or GQ and shows Posts not tied to the topic, or no post at all and is found unacceptable and scores 1 to 0 points.

Second Criteria
Second criteria, additional posts, addresses the need for posts following the Initial Post. Additional posts occur throughout the weekly discussions: Additional postings focus on your response to other's while you are reading, and or following the completion of weekly readings or videos. The additional posts build on other's posts and comment analytically. The additional posts quote directly from other's posts, and the score would be 4 points.

Additional posts, which follows the Initial Post, builds on others posts and comments analytically, yet does not directly quote from other's post, scores 3 points.

Additional posts, which follows the Initial Post, respond to others posts, yet lacks depth and without quoting directly or indirectly from other's post, scores 2 points.

Additional posts, which follows the Initial Post, yet lacks depth and without quoting directly or indirectly from other's post, and comments may not relevant to the discussion, and is found unacceptable and scores 1 to 0 points.

Third Criteria
Third criteria focus on details in each post and addresses the requirement for highly detailed and correct posts. Posts throughout the week would possess three or more quotes from readings, podcasts or videos to support your statements and the score would be 4 points.

Posts throughout the week are detailed and correct. Quotes taken from readings or videos are utilized to support statement at least one to two times and scores 3 points.

Posts throughout the week are somewhat detailed and correct. Quote are not utilized from readings or videos to support statements yet refers to readings and scores 2 points.
Posts throughout the week respond to others with few details or facts. No quotes or references from readings or videos are used to support statements and is found unacceptable and scores 1 to 0 points.

Fourth Criteria
Fourth criteria refer to the quality of information in response to others posts. The posts a responsible for referring to what others have written and provides details from information gathered within the course and encouraged new ideas, and the score would be 4 points.

Posts refer to what others have written, provides some details from information gathered within the course and scores 3 points.
Posts refer only to what others have written, does not provide information gathered within the course and scores 2 points.
Posts do not refer to what others have posted and are found unacceptable and score 1 to 0 points.

Fifth criteria
Fifth criteria refer to the frequency of weekly discussion posts. To have a dynamic class, each participant is encouraged to share their voice, opinions, and reactions to the content and how the new content has impacted upon their thinking and classroom practices. Posts are essential and are equal to class participation. Being present often ensures that your voice is heard. Posting at least 7-8 times throughout the week is essential, and the score would be 4 points.

Posts at least 5-7 times throughout the week and shows good effort, scores 3 points.
Posts at least 3-4 times throughout the week and shows acceptable effort, scores 2 points.
Posts 0-2 times and shows unacceptable effort, scores 1 to 0 points.

Note: All Discussion Board rubric points are evaluated on a 4-3-2-1-0 basis. The highest score for each Discussion (4) would be 20 points or a total of 80 points.

Participants will review readings/viewings, by analyzing the content for information, what is interesting, and what is new, and what is considered the pros and cons of the information. Participants should justify their analysis, providing their own opinions, not just quote information. However, your opinion must be backed up by quoting from the readings/viewings.

What to Consider when posting:
•Guiding Questions (GQ)
•Initial posting
•Refer to at least two specific points, from the article or reading.
•Conveying new information
•Contrasting earlier information learned in the course of new information (after week1).

•Convey information from the read, watch, listen information gathering, to personal experiences.

•Consider the importance of the final post to the Discussion board

•Discussion at a *critical level is not just facts from information gathering, but rather provides supporting evidence (see below).

•Discussion at a critical level means discussing, for example, the following:

•Opinion of the facts gathered or facts mentioned by others in the discussion group

•Why the opinion is held

•What is wrong with the fact/s mentioned

•Are the points, facts, opinions, consistent and or inconsistent with the material presented so far

•What are the implications for the future, consistencies, and or inconsistencies within the readings or videos?

Note: Participants will review readings/viewings, by analyzing the content for information, what is interesting, and what is new, and what is considered the pros and cons of the information. Participants should justify their analysis, providing their own opinions, not just quote information. However, your opinion must be backed up by quoting from the readings/viewings.

Final Project – Due on or before the last day of class
Participants are required to create a Final Project. The Final Project should address how the course content has influenced their thinking. The Final Project can be a tool to be used by you for professional purposes, a presentation or an activity. It should be short, for example, no more than 20 slides, concise, and cite from course content. DO NOT provide an overview of the course content.

*Format choices:

1.PowerPoint (Visual & Audio) might be useful if the intent is to share the information.

2.A Prezi (instead of a PowerPoint)

3.A Podcast may be useful to create a report, much like a newscast **

4.Writing a 10-page double-spaced APA style paper. One page of the paper may include a Wordle.

5.Or any other application that you choose to create your Final Project.

**Note: If a participant chooses to create a Podcast, a summary of the podcast and sources cited, using APA style guidelines is required.

Rubric for the Final Project
Five criteria for the final project are as follows: Question, Information, Quotes and Encourages new ideas.

First criteria, the question
If the question directly relates to the course topics and the work that you do, this question earns a score of 4 points.

If the question is somewhat related to the course topics, and the work that you do, this question earns a score of 3 points.

If the question indirectly relates to the course topics, and the work that you do, this question earns a score of 2 points.

If the question does not directly relate to the course topics, and or the work that you do, this question earns a score of 1 to 0 points.

Second criteria, the information

If the information is highly detailed and correct, you earn a score of 4 points.

If the information is somewhat detailed and correct, you earn a score of 3 points.

If the information has some detail and somewhat correct you earn a score of 2 points.

If the information lacks detail, and or is not correct, you earn a score of 1 to 0 points.

Third criteria, how analytical is it

If the information is analytical and demonstrates a proficient understanding, you earn a score of 4 points.

If the Information is analytical and demonstrates above average understanding, you earn a score of 3 points.

If the Information is analytical and demonstrates an acceptable level of understanding, you earn a score of 2 points.

If the Information is not analytical and or demonstrates a poor understanding, you earn a score of 1 to 0 points.

Fourth criteria, using quotes

If 4 quotes or more are used to support statements/assertions you earn a score of 4 points.

If 3 quotes or more are used to support statements/assertions you earn a score of 3 points.

If 2 quotes or more are used to support statements/assertions you earn a score of 2 points.

If quotes are not used, or 1 quotes are used to support statements/assertions you earn a score of 1-0 points.

Fifth criteria, encouraging new ideas or new thinking

If the final project responds to the final project question and responds to misconception, new ideas or new thinking you earn a score of 4 points.

If the final project responds to the final project question and responds somewhat to misconception, new ideas or new thinking you earn a score of 3 points.

If the final project responds the final project question and responds to misconception yet does little to encourage new ideas or new thinking you earn a score of 2 points.

If the final project does or does not respond to the final project question, and does or does not responds to misconception, or new ideas or new thinking you earn a score of 1 to 0 points.

Final Project – Due on or before the last day of class

Participants are required to create a Final Project. The Final Project should address how the course content has influenced their thinking. The Final Project can be a tool to be used by you for professional purposes, a presentation or an activity. It should be short, for example, no

more than 20 slides, concise, and cite from course content. **DO NOT provide an overview of the course content**.

*Format choices:
PowerPoint (Visual & Audio) might be useful if the intent is to share the information.
A Prezi (instead of a PowerPoint)
A Podcast may be useful to create a report, much like a newscast. If a participant chooses to create a Podcast, a summary of the podcast and sources cited, using APA style guidelines is required.
Writing a 10-page double-spaced APA style paper. One page of the paper may include a Wordle.
Or any other application that you choose to create your Final Project.

College Policy Regarding Academic Honesty
Integrity is essential to academic life. Consequently, students who enroll at Framingham State College agree to maintain high standards of academic honesty and scholarly practice. They shall be responsible for familiarizing themselves with the published policies and procedures regarding academic honesty. Refer to *FSU Graduate Catalog, Student Conduct section, page 7 at:* http://www.framingham.edu/graduate-and-continuing-education/documents/grad-catalog-0910.pdf**.**

Research
Additional supporting information can be researched at the Framingham State University Online Library. Just logon to you FSU My Campus account and go to the tab that says Library.

Academic Accommodations Policy
Framingham State University offers equal opportunities to all qualified students, including those with disabilities and impairments. The University is committed to making reasonable accommodations as are necessary to ensure that its programs and activities do not discriminate, or have the effect of discriminating, on the basis of disability. Academic Support serves students with learning and psychiatric disabilities as well as students with visual, mobility and hearing impairments. For further information about this, please visit the website at: https://www.framingham.edu/academics/center-for-academicsuccess-and-advising
or contact Ms. LaDonna Bridges, Director of Academic Support/Disability Services, in the Center for Academic Support and Advising (CASA) at 508-626-4906 or lbridges@framingham.edu

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