

Date Dec. 6, 2013  
School / Department SB HS/CS

Santa Barbara High School District  
**NEW COURSE APPROVAL**

I. The teacher proposing the new course of approval will submit this completed form, along with 10 copies of the form, to the Administrative Curriculum Committee on or by \_\_\_\_\_.

II. If a new textbook needs to be purchased for the new course, please remember to complete the 'Request for Textbook Adoption (Non- Primary State Adoption)' form.

III. Description of Proposed Course.

Before you complete this form, please make sure that you have considered the following questions:

- Is there a similar course already being taught at another site?
- Have I looked through the district course catalog to make sure that the course doesn't already exist?

- A. Title of course. Mobile Programming w/ Linear Algebra
- B. Length of course (semester, year long).
- C. What type of learners will take the course? Circle all that apply.  
a. Special Education GATE English Language Learners
- D. Description of the standards taught in the course. If you need more room to answer the questions than what is allotted, please continue onto an additional sheet of paper and attach to form.
- E. What A-G requirement does it fulfill? (High School Course only)
- F. Does the course have targeted ability level? If so, what is the designation of the course? (AP, Honors, College Prep)
- G. Explain the rationale for the creation of the course. What need does it fulfill?
- H. Describe the instructional materials used. Include the cost of instructional materials.
- I. Describe any other costs associated with the course. What will be your source of funding for these materials?
- J. What is the targeted grade level of this course? Justification for targeted grade level.
- K. Describe how this course fits into the sequence of courses already being offered at your site.
- L. What credential(s) are required to teach this course? Additional training?
- M. Are there any partnerships with outside agencies? (businesses, community programs, colleges, grants). If yes, please explain.

IV. Site Level Approval Signatures

[Signature] Date 6 Dec 13  
Teacher Proposing Course

[Signature] Date 6 Dec 13  
Department Chair

\_\_\_\_\_  
Additional Teacher (Same Department)  
Date 12-6-13

[Signature] Date 12/6/13  
Head Counselor

[Signature]  
Principal

The Administrative Curriculum Committee will review the proposed course and forward the proposal to all secondary sites for approval and review.

V. Other Site Level Approval Signatures.

Date of meeting in which the proposed course was discussed 12/17  
\_\_\_\_\_  
Approved  
\_\_\_\_\_  
Denied (include rationale for decision if denied)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Chairperson of Department

Date 10/23/13

After obtaining signatures, please forward this document to the Administrative Curriculum Committee at the District Office. This committee will review the forms and forward the completed proposal to the Associate Superintendent.

\_\_\_\_\_  
Associate Superintendent

Date \_\_\_\_\_

## SBHS District New Course Approval

### Section III, Description of Proposed Course.

- A. Title: Mobile Programming with Linear Algebra
- B. Duration: Year long.
- C. All types of learners are welcome in this course if they meet the prerequisites of having prior programming experience equivalent to AP Computer Science and are currently enrolled in Algebra II or higher math course.
- D. The course objectives are to
  - Learn and master:
    - The Objective-C programming language, including
      - basic syntax, primitives, flow control, operators, pointers, messages, objects, and classes
      - The Xcode IDE
      - Apple's Cocoa Frameworks and selected topics, including
        - Cocoa classes, events, memory management, views, view controllers, gestures, and drawing
    - Linear Algebra, including
      - Basics of implication and equivalence, set theory, functions, combinations and permutations, matrices and matrix calculations, special matrices, determinants, solving linear systems, vectors and linear independence, and linear transformations including scaling, rotation, translation, and 3-D projection and perspective.

The Common Core State Standards addressed are

- CCSS.Math.Practice.MP1 Make sense of problems and persevere in solving them.
  - CCSS.Math.Practice.MP2 Reason abstractly and quantitatively.
  - CCSS.Math.Practice.MP3 Construct viable arguments and critique the reasoning of others.
  - CCSS.Math.Practice.MP4 Model with mathematics.
  - CCSS.Math.Practice.MP5 Use appropriate tools strategically.
  - CCSS.Math.Practice.MP6 Attend to precision.
  - CCSS.Math.Practice.MP7 Look for and make use of structure.
  - CCSS.Math.Practice.MP8 Look for and express regularity in repeated reasoning.
- E. This will fulfill the UC "c" - Mathematics requirement
  - F. The targeted ability level is students who are strong in both math and computer science as described in section C.
  - G. The rationale for the creation of this course is to provide a stimulating and fun yet rigorous follow-on to the AP Computer Science course. This course is for students who have completed APCS or the equivalent and are seeking further studies in Computer Science and Math.
  - H. Instructional materials include
    - A computer lab with one Apple computer per student
    - The free Xcode Integrated Development Environment (IDE)
    - Free online iOS resources (tutorials, guides)

- Possible textbooks: The Manga Guide to Linear Algebra by S. Takahashi and I. Inoue (\$25), and Cocoa with Objective-C, P. Buttfield-Addison and J. Manning (\$40). Funding provided by SBHS
- I. No other known costs exist at this time
- J. The targeted grade level is grades 11-12. Exceptional students in grade 10 who meet the criteria stated in section C may be admitted with instructor approval.
- K. This course fits into the sequence of Computer Science courses already being taught as the next step beyond APCS.
- L. Secondary Math Credential with competency in Computer Science / Computer Programming, iOS / Cocoa / Objective-C and the fundamental concepts of Linear Algebra as applied to graphics programming.
- M. No partnerships with outside agencies at this time.