

Date Dec. 6, 2013
School / Department SBHS/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. Computational Art
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)

[Signature] Date 12/6/13
Head Counselor

[Signature] Date 12-6-13
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 12/19

Approved

Denied (include rationale for decision if denied)

mm
Chairperson of Department

Date 12/18/13

I

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: Computational Art
- B. Duration: Year long.
- C. All types of learners are welcome in this course. There are no programming prerequisites, though students should be comfortable using a computer and must be enrolled concurrently in Algebra 1 or higher math course.
- D. The course objectives are to
 - Learn and master:
 - ▣ the basics of color theory
 - ▣ the role of shape in traditional art
 - ▣ how shapes are represented computationally
 - ▣ how 2D mathematical functions can represent and control shape
 - ▣ the basics of 2D coordinate systems
 - ▣ basics of curves (Bezier and splines)
 - ▣ the basics of composition and relationship
 - ▣ the basics of perspective
 - ▣ how images are represented digitally
 - ▣ basic image manipulation (e.g. edge detection)
 - ▣ the principles of animation
 - ▣ hierarchical modeling for rigid body animation
 - ▣ simple particle simulation
 - ▣ how to write simple text based computer programs in Processing including:
 - variables and mathematical operators
 - control structures (loops, conditionals, functions)
 - data types and compound data structures

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.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 "f" - Visual and Performing Arts requirement
- F. The targeted ability level is unspecified other than what's described above in section C. Any student grade 9-12 who wants both an introduction to Art and Computer Science / Programming would be welcome.
- G. The rationale for the creation of this course is to provide an alternative pathway from SBHS's Computer Science Principles course for introducing students to Computer Science, as well as to give students more choice in how they fulfill the year-long Art requirement. The integration of CS and Art is unique and should attract and introduce a broader spectrum of students to Computer Science in a non traditional way.
- H. Instructional materials include

- A computer lab with one computer per student
 - The free and open source Processing program Integrated Development Environment (IDE)
 - Free online Processing resources (tutorials, guides)
 - Possible textbook: Getting Started with Processing, by C. Reas and B. Fry (\$15 per), funding provided by SBHS
- I. No other known costs exist at this time
- J. The targeted grade level is all grades, 9-12. Students may choose to take this course at any time during their high school career.
- K. This course fits into the sequence of Computer Science courses already being taught and in development at SBHS, and also provides a greater choice for students looking to fulfill the UC "f" requirement.
- L. Secondary Math Credential with competency in Computer Science / Computer Programming and the fundamental concepts of Art.
- M. No partnerships with outside agencies at this time.