Chino Valley Unified School District
High School Course Description

CONTACTS	
1. School/District Information:	School/District: Chino Valley Unified School District Street Address: 5130 Riverside Dr., Chino, CA 91710 Phone: (909) 628-1201 Web Site: chino.k12.ca.us
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A. COVER PAGE - COURSE ID	
1. Course Title	AP Computer Science Principles
2. Transcript Title/Abbreviation	AP CSP
3. Transcript Course Code/Number	5E21
4. Seeking Honors Distinction	Yes
5. Subject Area/Category	Meets the "g" elective UC/CSU requirement
6. Grade level(s)	10-12
7. Unit Value	5 units per semester / 10 units – elective
8. Length of Course	Two (2) semesters/one (1) year
9. Was this course previously approved by UC?	Yes
10. Is this course classified as a Career Technical Education course?	No
11. Is this course modeled after an UC approved course?	Yes
12. Repeatable for credit?	Yes
13. Date of Board Approval	May 5, 2016

14. Brief Course Description:

AP Computer Science Principles introduces students to the central ideas of computer science, instilling the ideas and practices of computational thinking and inviting students to understand how computing changes the world. The rigorous course promotes deep learning of computational content, develops computational thinking skills, and engages students in the creative aspects of the field. The course is unique in its focus on fostering students to be creative.

The AP Computer Science Principles course is designed to be equivalent to a first-semester introductory college computing course. Students will learn computer programming in multiple programming languages and apply these skills to the construction of computer applications to solve problems in a project-based setting.

15. Prerequisites:	Algebra 1 / Integrated Math 1

16. History of Course Development:

In the spring of 2011, over 100 college and university computer science department chairs and professors who reviewed the AP Computer Science Principles Curriculum Framework provided the following attestations:

- 88% believe the course is a college-level computing course.
- 86% indicated they would award college credit.
- 70% indicated they will be offering a comparable course.

See the list:
https://advancesinap.collegeboard.org/stem/computer-science-principles/higher-ed-support

17. Textbooks:	Online and supplemental course materials are used
18. Supplemental Instructional Materials:	1. *Blown to Bits: Your Life, Liberty, and Happiness After the Digital Explosion* by Abelson, Leeden, and Lewis, 2010 (ISBN-13: 978-0137135592) 2. Access to computers with appropriate software 3. Access to mobile devices

B. COURSE CONTENT

Course Purpose:

Students are encouraged to apply creative processes when developing computational artifacts and to think creatively while using simulations to explore questions that interest them. Rather than teaching a particular programming language or tool, the course focuses on using technology and programming as a means to solve computational problems and create exciting and personally relevant artifacts. Students design and implement innovative solutions using an iterative process similar to what artists, writers, computer scientists, and engineers use to bring ideas to life.

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To appeal to a broader audience, including those often underrepresented in computing, this course highlights the relevance of computer science by emphasizing the vital impact advances in computing have on people and society. By focusing the course beyond the study of machines and systems, students also have the opportunity to investigate the innovations in other fields that computing has made possible and examine the ethical implications of new computing technologies.

Students who take an AP Computer Science Principles course will develop a range of skills vital to success in subsequent college courses, such as using computational tools to analyze and study data and working with large data sets to analyze, visualize, and draw conclusions from trends. They will also develop effective communication and collaboration skills, working individually and collaboratively to solve problems, and discussing and writing about the importance of these problems and the impacts to their community, society, and the world.

The AP Computer Science Principles is organized around the investigation of seven big ideas, all of which are fundamental principles essential to thrive in future college courses and a variety of computing and STEM (science, technology, engineering, mathematics) careers. Emphasizing these key big ideas helps students build a solid understanding and facility with computing and computational thinking. These integral understandings can be applied in further studies of computer science and provide a pathway for becoming a well-educated and informed citizen who understands how computer science impacts people and society.

Course Outline:
The computational thinking practices capture important aspects of the work that computer scientists engage in at the level of competence expected of AP Computer Science Principles students. The computational thinking practices help students coordinate and make sense of knowledge to accomplish a goal or task. They enable students to engage with the course content by developing computational artifacts and analyzing data, information, or knowledge represented for computational use. In addition, the computational thinking practices require students to learn to collaborate to build computational artifacts and communicate their purpose. Because the AP Computer Science Principles content and the computational thinking practices are equally important, each learning objective directly correlates to a computational thinking practice. This correlation to a computational thinking practice is denoted at the end of a learning objective.

Curriculum Framework at:
https://secure-media.collegeboard.org/digitalServices/pdf/ap/ap-computer-science-principles-curriculum-framework.pdf

Key Assignments:
A two and a half to three week project each semester.

Instructional Methods and/or Strategies:
- Project-based learning strategies
- 21st Century
- Work-based

Assessment Including Methods and/or Tools:
The AP Computer Science Principles assessment consists of two parts: a through-course assessment and the end-of-course AP Exam. Both of these parts will measure student achievement of the course learning objectives. For the through-course assessment, students will upload digital artifacts and written responses via a Web-based digital application. The end-of-course AP Exam will be a paper and pencil exam.

Through – Course Assessment
The through-course assessment is a set of performance tasks designed to gather evidence of student proficiency in the learning objectives. Performance tasks assess student achievement in more "real-world" ways than are available on a timed exam. In addition, there are learning objectives that are more effectively measured in a performance task, such as those included in the Creativity big idea. The performance tasks are summative assessments, and will be completed in the classroom. The two performance tasks are:

1. Explore – Implications of Computing Innovations
   Students explore the impacts of computing on social, economic, and cultural areas of our lives.
2. Create – Applications from Ideas
   Students create computational artifacts through the design and development of programs. Prior to administering the performance tasks, teachers should prepare their students by teaching the skills embodied in the learning objectives and the content articulated in the essential knowledge statements. Instruction may include practicing the performance tasks before administering them to students. Once a teacher administers a performance task with the intent to submit student artifacts for AP scoring purposes, students must complete the task without assistance from the teacher.

Distinguishing features of the performance tasks include the following:
Each performance task covers numerous learning objectives, distributed across several big ideas.

- The Create performance task requires both collaborative and individual effort as well as reflections on each student's contribution to the task.
- Each task requires students to describe or analyze their work, whether the work includes research, the creation of an artifact (e.g., a video, spreadsheet, graph, or electronic slide show), or the creation of a program.

For the latest pilot (DRAFT) versions of the AP Computer Science Principles performance tasks and rubrics, go to:
http://www.collegeboard.com/html/computerscience/index.html?excmpid=MTG77-ED-1-apcs