

CS 51 Computer Science Principles

APCSP Module 3: Data, Internet, Computer and Programming

Unit 1: Creative Development



SYLLABUS

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National
Taiwan
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Curriculum Overview and Goals

Computing affects almost all aspects of modern life and *all* students deserve access to a computing education that prepares them to pursue the wide array of intellectual and career opportunities that computing has made possible. Here is a brief summary of each of the units in the Code.org CSP curriculum.

| | |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit 1: The Internet | Learn how the multi-layered systems of the Internet function as you collaboratively solve problems and puzzles about encoding and transmitting data, both 'unplugged' and using Code.org's Internet Simulator. |
| Unit 2: Digital Information | Use a variety of digital tools to look at, generate, clean, and manipulate data to explore the relationship between information and data. Create and use visualizations to identify patterns and trends. |
| Unit 3: Algorithms and programming | Learn the JavaScript language with turtle programming in Code.org's App Lab. Learn general principles of algorithms and program design that are applicable to any programming language. |
| Unit 4: Big Data and Privacy | Research current events around the complex questions related to public policy, law, ethics, and societal impact. Learn the basics of how and why modern encryption works. |
| Unit 5: Building Apps | Continue learning how to program in the JavaScript language. Use Code.org's App Lab environment to create a series of applications that live on the web. Each app highlights a core concept of programming. |

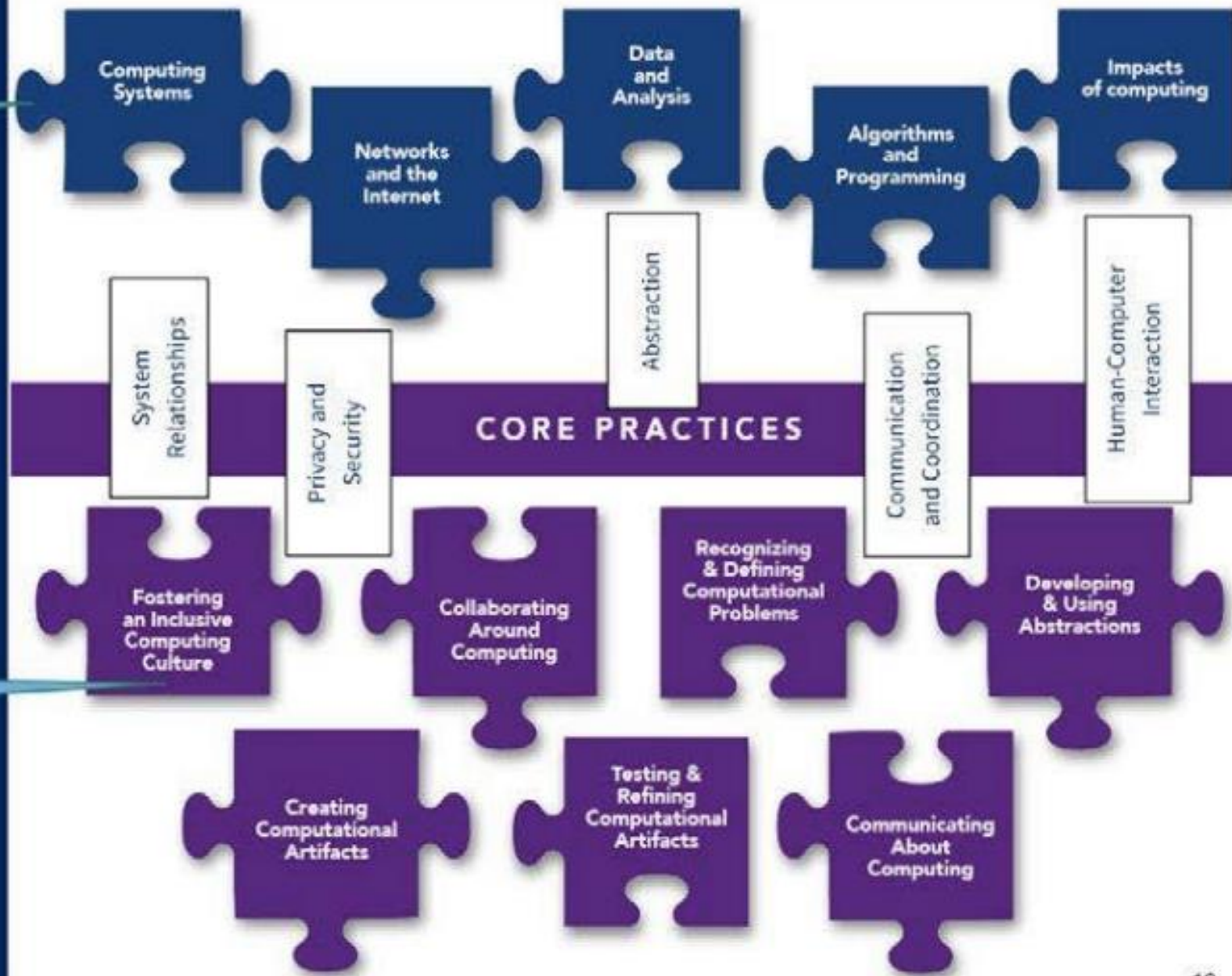
This course is not a tour of current events and technologies. Rather, it seeks to provide students with a "future proof" foundation in computing principles so that they are adequately prepared with both the knowledge and skills to live and meaningfully participate in our increasingly digital society, economy, and culture.

Know

Core Concepts and Practices

Do

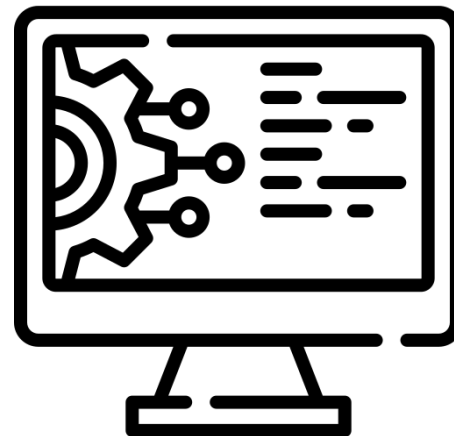
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CS 51 Course Schedule Spring 2023

| Date | Topic | Quiz | Practice Chapters | Practice Exam |
|-------------|-------------------------------------------|-------------|--------------------------|--------------------------------|
| W1-01/08 | Lecture 1 Creative Development (Unit 1) | X | Barron's Unit 1 | |
| W2-01/15 | Lecture 2 Data Types (Unit 2) | X | Barron's Unit 2 | |
| W3-01/22 | Lecture 3 Data Compression (Unit 2) | X | | |
| W4-01/29 | Lecture 4 Information (Unit 2) | X | Barron's Unit 4 | |
| W5-02/05 | Lecture 5 Computer and Network Hardware | X | | |
| W6-02/12 | Lecture 6 Internet (Layer 4-7) (Unit 4) | X | Barron's Unit 5 | |
| W7-02/19 | Lecture 7 Global Impacts (Unit 5) | X | | |
| W8-02/26 | Lecture 8 Ethics and Security (Unit 5) | X | | |
| W9-03/05 | Lecture 9 App Lab Overview (Unit 3) | | Barron's Unit 3 Part 1 | |
| W10-03/12 | Lecture 10 Program Structure (Unit 3) | | | |
| W11-03/19 | Lecture 11 List and Loop (Unit 3) | | Barron's Unit 3 Part 2 | College Board Sample Questions |
| W12-03/26 | Lecture 12 Algorithm and Library (Unit 3) | | | Barron 1 |
| W13-04/02 | Lecture 13 Hackathon (Unit 3) | | | Barron 2 |
| W14-04/09 | AP Create Task Preparation | | | Barron 3 |
| W15-04/16 | APCSP College Board 2016 Discussion | | | APCSP College Board 2016 |
| W16-04/23 | APCSP College Board 2018 Discussion | | | APCSP College Board 2018 |
| W17-04/30 | APCSP College Board 2020 Discussion | | | APCSP College Board 2020 |
| Total | | | | |
| | | | | |