CS 51 Computer Science Principles

APCSP Module 3: Data, Internet, Computer and Programming

Unit 1: Creative Development

SYLLABUS

DR. ERIC CHOU   IEEE SENIOR MEMBER

Eric Chou, Ph.D.

Adjunct Professor, Lewis Univ.

IEEE Senior Member
CSTA Member

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.

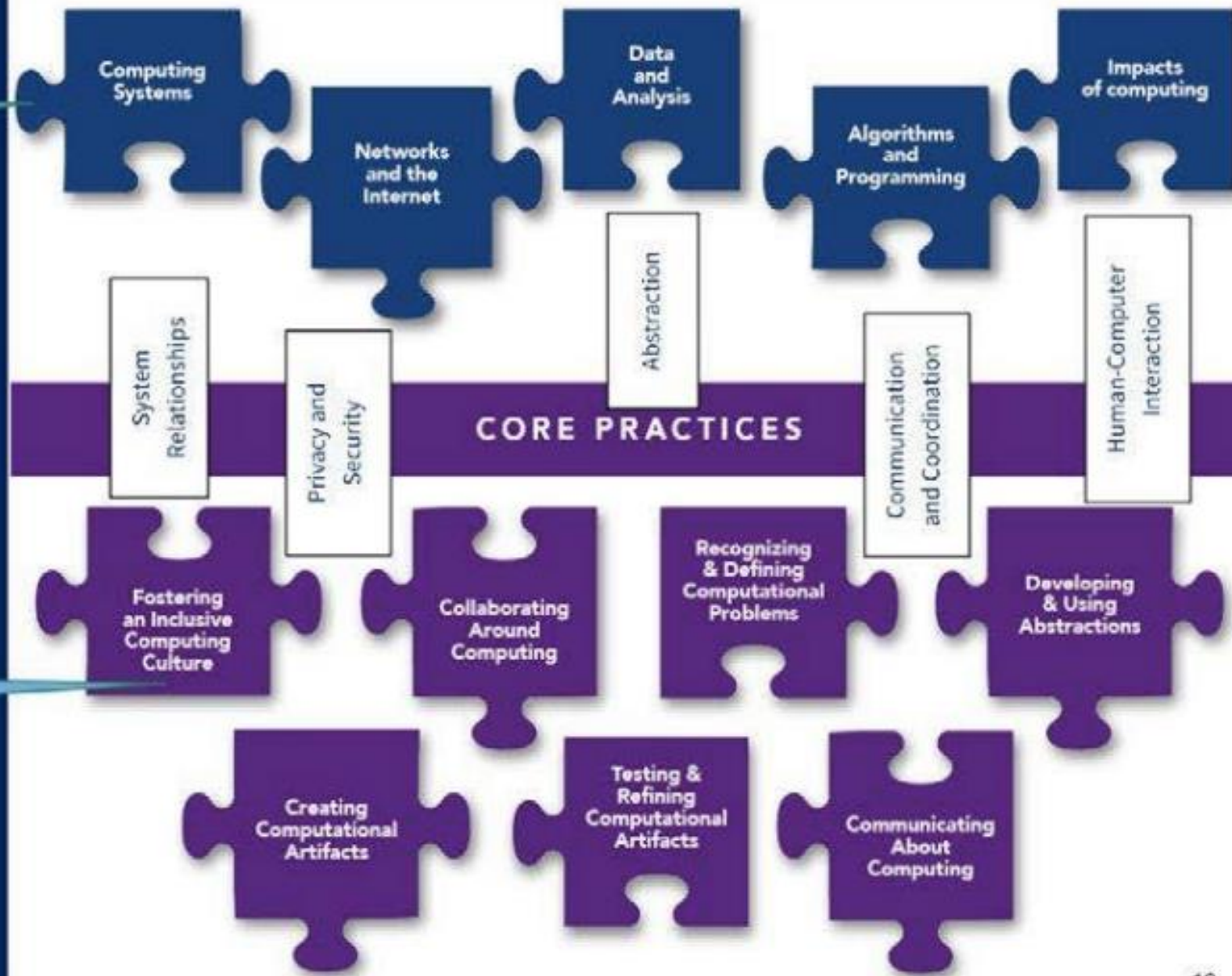|	
Unit 1: The Internet	Learn how the multi-layered systems of the Internet function as you collaboratively solve problems and puzzles about encoding and transmitting data, both 'unplugged' and using Code.org's Internet Simulator.
Unit 2: Digital Information	Use a variety of digital tools to look at, 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.
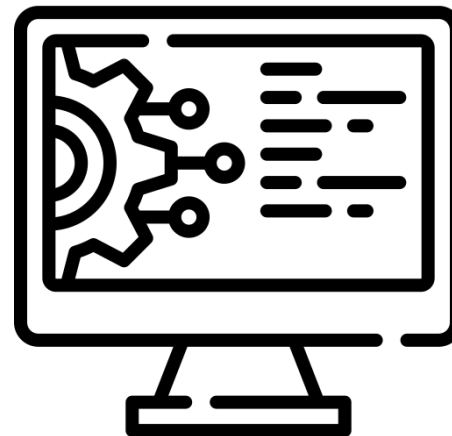
Know

Core
Concepts
and Practices

Do

K12 COMPUTER SCIENCE
FRAMEWORK

Computing Systems

Networks and the Internet

Data and Analysis

Algorithms and Programming

Impacts of computing

System Relationships

Privacy and Security

Abstraction

Communication and Coordination

Human-Computer Interaction

CORE PRACTICES

Fostering an Inclusive Computing Culture

Collaborating Around Computing

Recognizing & Defining Computational Problems

Developing & Using Abstractions

Creating Computational Artifacts

Testing & Refining Computational Artifacts

Communicating About Computing

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eC Learning Channel

Discovering Computers

16th Edition

By Misty E. Vermaat, Susan L. Sebok, et al.

DISCOVERING COMPUTERS 2018

Digital Technology, Data, and Devices

VERMAAT | SEBOK
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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 (Uni 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 Diag
W13-04/02	Lecture 13 Hackathon (Unit 3)			Barron 1
W14-04/09	AP Create Task Preparation			Barron 2
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				

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