TAE coding Technology Applied Edaucation COURSE CATALOG

970 Roosevelt #100 | Irvine, CA 92620 | 949-445-1118 | master@taecoding.com

A new era of the 4th Industrial Revolution is imminent. We are already witnessing advancements in technology, such as artificial intelligence, the Internet of Things(IoT) and Big Data rapidly changing every aspect of our society. Preparing our children for these unprecedented changes is critical and imperative.

We at TAE Coding believe that learning coding is as important as learning to read and write for today's students. Through programming education, the students will develop logical thinking and creative algorithmic problem-solving skills. Quality coding education can empower them to be creative leaders in any field in this new era of change.

TAE Coding is a specialist in early coding education. We have designed various learning tracks to accommodate and foster different interests and goals. Each track provides a streamlined guide for our students to learn not only the fundamentals but also advanced programming through systematic curriculum.

TRACKS OFFERED

CS PRINCIPLE TRACK [GRADES: 4TH – 6TH]

- **[CS11]** Introduction to Programming in Scratch
- **[CS12]** Programming Fundamentals in Scratch
- **[CS13]** Game Development in Scratch
- **[CS14]** Mobile App Development in App Inventor

CS FOUNDATION TRACK [GRADES: 7TH AND UP]

- **[CS21]** Introduction to Programming in Python
- **[CS22]** Programming Fundamentals in Python

CS APPLICATION TRACK [GRADES: 7TH AND UP]

- **[CS31]** Web Animation and Game Development
- **[CS32]** Web Design and Development
- **[CS33]** Web App Development in Angular
- **[CS34]** Mobile App Development in Ionic

CS AP TRACK [GRADES: 7TH AND UP]

- **[CS41]** Introduction to AP Computer Science
- **[CS42]** Programming Fundamentals in JAVA
- **[CS43]** AP Exam Preparation

CS OLYMPIAD TRACK [GRADES: 7TH AND UP]

- **[CS51]** Introduction to Competition Programming
- **[CS52]** Olympiad Bronze Contest Preparation
- **[CS53]** Olympiad Silver Contest Preparation
- **[CS54]** Olympiad Algorithm

CS DATA SCIENCE TRACK [GRADES: 7TH AND UP]

- **[CS61]** Introduction to Data Science
- **[CS62]** Data Visualization and Statistics
- **[CS63]** Machine Learning Fundamentals

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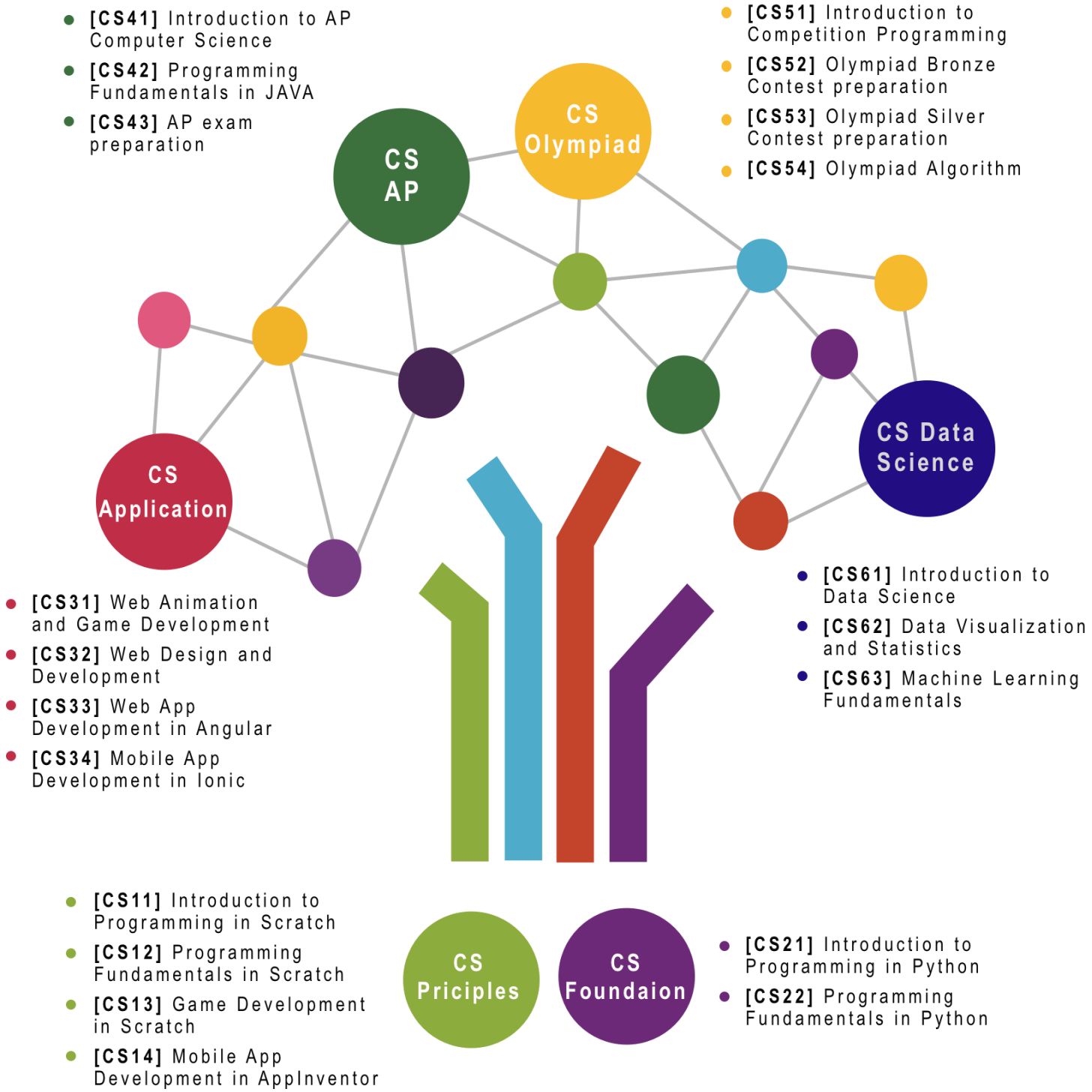
COURSE TRACK TREE



TAE coding Technology Applied Education CS PRINCIPLE TRACK

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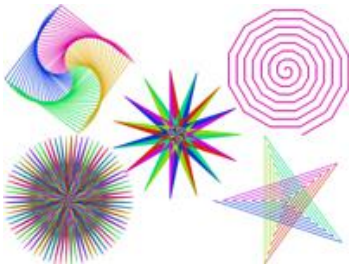
In this Computer Science Principle Track, students will learn essential concepts for programming principles by learning Scratch and App Inventor. Both Scratch and App Inventor are block-based programming languages developed by MIT. Scratch and App Inventor are visually powerful to facilitate the learning of complex programming principles. Students will also learn how to create interactive data-oriented animations and games and how to share their creations with others. By the end of this track, students will have a strong foundation for programming principle and logical computational thinking to move on to more advanced tracks.

Length: 4 Courses
Recommended Grades: 4th – 6th
Prerequisites: None

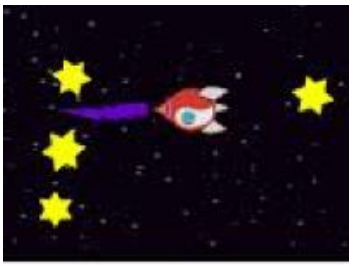
[CS11] INTRODUCTION TO PROGRAMMING IN SCRATCH

This is the first course in Computer Science Principle Track. Students will learn essential programming concepts, such as variables, operators, expressions, conditional statements, loops, and functions. Also, students will learn how to create basic interactive animations and games. Quizzes and homework will be assigned on a weekly basis.



[CS12] PROGRAMMING FUNDAMENTALS IN SCRATCH

This is the second course in Computer Science Principle Track. On top of the essential programming concepts, students will learn more advanced programming concepts, such as string, list manipulation, and recursions. Also, students will learn how to create more advanced data-oriented animations and games. Quizzes and homework will be assigned on a weekly basis.



[CS13] GAME DEVELOPMENT IN SCRATCH

This is the third course in Computer Science Principle Track. With all the programming concepts, students will focus on developing more complicated and interactive games. Also, students will learn how to publish and share their creations with others in the world. By working through projects, students will also learn the basic life cycle of computer science. Quizzes and homework will be assigned on a weekly basis.

[CS14] MOBILE APP DEVELOPMENT IN APP INVENTOR

This is the last course in Computer Science Principle Track. Students will learn the essential constructs of App Inventor and how to design and develop functional mobile apps for smartphones and tablets. Quizzes and homework will be assigned on a weekly basis.

TAE coding CS FOUNDATION TRACK

Technology Applied Edaucation

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In this Computer Science Foundation Track, students will learn essential concepts for programming principles by using Python. Python is an expressive programming language to facilitate the learning of complex programming principles and, also a popular versatile language even suitable for data science. By the end of this track, students will have a strong foundation of programming principles and logical computational thinking to move on to learn how to develop the advanced applications.

Length: 2 Courses
Recommended Grades: 7th and up
Prerequisites: None

[CS21] INTRODUCTION TO PROGRAMMING IN PYTHON

This is the first course in Computer Science Foundation Track. By learning Python programming, students will learn essential programming concepts, such as variables, constants, operators, expressions, conditional statements, loops, and functions. Quizzes and homework will be assigned on a weekly basis.

[CS22] PROGRAMMING FUNDAMENTALS IN PYTHON

This is the second course in Computer Science Foundation Track. Students will learn string, list, range sequences, the power of list iteration, string and list methods. Also, students will learn the data structures and other practical tasks of Python programming. Quizzes and homework will be assigned on a weekly basis.

TAE coding CS APPLICATION TRACK

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In this Computer Science Application Track, students will learn how to develop the advanced applications for desktop, web and mobile with the latest industry standard technologies and tools, including JavaScript, HTML5 and CSS, VSCODE IDEA, Typescript, Angular, Ionic and Node.js. By working through fun projects, students will also learn the core software development principles. More importantly, they will learn the common structures in applications and how to apply them to learn new technologies more quickly. By the end of this track, students will have a strong foundation of developing applications and move on to more advanced applications.

Length: 4 Courses
Recommended Grades: 7th and up
Prerequisites: CS Foundation Track

[CS31] WEB ANIMATION AND GAME DEVELOPMENT

This is the first course in Computer Science Application Track. Students will learn the constructs of JavaScript programming and how to build animations, interactive art and games in Typescript. Also, students will learn how to publish websites with animations and interactive games. Quizzes and homework will be assigned on a weekly basis.

[CS32] WEB DESIGN AND DEVELOPMENT

This is the second course in Computer Science Application Track. Students will learn the constructs of HTML5 and CSS for web designing and styling. Students will also learn how to integrate CSS and JavaScript to give a professional look and feel. Quizzes and homework will be assigned on a weekly basis.

[CS33] WEB APP DEVELOPMENT IN ANGULAR

This is the third course in Computer Science Application Track. Students will learn Google Angular framework, which is the latest application development technology. By learning Angular framework, student will be able to build applications suitable for all platforms, such as web, mobile web, native mobile, and native desktop. Quizzes and homework will be assigned on a weekly basis.

[CS34] MOBILE APP DEVELOPMENT IN IONIC

This is the fourth course in Computer Science Application Track. Students will learn Ionic 2, one of the most popular open source frameworks especially for building mobile applications. Students will learn how to develop their own mobile applications and how to publish it. Quizzes and homework will be assigned on a weekly basis.