

Introduction to Computer Science Coding

TECH 027 055

Credits: 0.5 units / 5 hours

Course Description

Introduction to Computer Science Coding will introduce students to computer coding. This course provides a solid foundation in the concepts of computer programming and coding and uses several free software programs: Scratch, App Inventor, Alice, and an HTML editor to teach students the basics of computer coding. Students will enhance their problem-solving skills through the completion of coding-based projects and activities. Students will need online access to complete this course as well as the ability to download and use Scratch and at least one of the other software programs listed to complete their required projects.

Graded Assessments: 3 Unit Evaluations; 3 Projects; 2 Proctored Progress Tests

Course Objectives

When you have completed the materials in this course, you should be able to:

1. Build a foundation in the concepts of computer programming.
2. Make cross-curricular connections between computer science, math, and scientific principles.
3. Solve problems using algorithms.
4. Develop a familiarity with data and expressions in coding.
5. Use decisions, loops, custom blocks and events in coding projects.
6. Incorporate sound and video into coding projects.
7. Understand the basics of animation and game design.
8. Understand how apps are developed and how App inventor functions.
9. Understand the theory and practice involved in 3D project coding.
10. Understand the history and uses of HTML and be able to code a project directly in HTML.

Course Outline

Unit 1: Introduction to Computer Programming

Lesson 1: Introduction to Computer Programming

Lesson 2: Problem Solving

Lesson 3: Introduction to Scratch Coding

Lesson 4: Data and Expressions

Unit 1 Evaluation

Project 1

Unit 2: Coding

Lesson 5: Decisions

Lesson 6: Loops

Lesson 7: Custom Blocks

Lesson 8: Events

Unit 2 Evaluation

Project 2

Progress Test 1

Unit 3: Animation, Game Design, Apps, 3D and Web Pages

Lesson 9: Sound and Video

Lesson 10: Animation

Lesson 11: Game Design

Lesson 12: App Design

Lesson 13: Working in 3D

Lesson 14: Coding Web Pages

Unit 3 Evaluation

Project 3

Progress Test 2

Required Textbook and Materials

(available through Follett virtual bookstore at <http://highschool.nebraska.bkstr.com>)

Textbook: *Introduction to Computer Science: Coding*. 2019. (ISBN: 9781635630565)