

LINC 78B: BLOCK BASED CODING CONCEPTS

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2023
Units:	2
Hours:	2 lecture per week (24 total per quarter)
Advisory:	Experience with internet software tools, browsers, hyperlinks, online media resources, and basic skills using a computer.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	CSU
Grade Type:	Letter Grade (Request for Pass/No Pass)
Repeatability:	Not Repeatable

Student Learning Outcomes

- Build coding projects in a variety of block-based languages.
- Apply programming concepts, such as variables, data types, loops, conditionals, and functions.

Description

This course, designed for educators, provides the foundational computer science concepts using block based computer programming languages, such as Scratch, Blockly, Logo, and others. These concepts illustrate the use of scripts, loops, and arrays in computer science, without the need to type or master the syntax of higher level programming languages.

Course Objectives

The student will be able to:

1. Apply programming concepts, such as variables, data types, loops, conditionals, and functions, to solve problems and challenges
2. Build coding projects in a variety of block based languages
3. Express creativity and integrate code into other content by creating open-ended coding projects
4. Create, test, and revise engaging coding projects

Course Content

1. Basic programming concepts
 - a. Variables
 - b. Data types
 - c. Loops
 - d. Conditionals
 - e. Functions
2. Build coding projects
 - a. Building strings of multiple concepts
 - b. Transitioning from one coding concept to another
3. Open-ended coding

- a. Adding geometric shapes to add art concepts to a project
 - b. Adding graphics to develop game or role playing concepts to a coding project
4. Student project development
 - a. Use of teacher and peer feedback to create engaging projects
 - b. Testing projects with sample groups

Lab Content

Not applicable.

Special Facilities and/or Equipment

1. When offered on/off campus: Lecture room equipped with projector, whiteboard, and a demonstration computer connected online. Computer laboratories equipped with computers or laptops with internet access.
2. When taught via the internet: Students must have current email accounts and ongoing access to computers with web browsing capability and internet access.

Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

- Developing a project utilizing block based coding
- Presenting their design and project to peers
- Making constructive contributions to class discussions and peer reviews

Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

- Lecture presentations delivered in student-centered learning style, during which students take notes, follow demonstrations, or complete an activity
- Facilitated discussions of live presentations, readings, or video presentations
- Student presentations in small group and whole class situations

Representative Text(s) and Other Materials

Instructor-assigned notes, materials, and resources, including instructional materials, open education resources, multimedia, and websites.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

1. Reading assignments include analysis of texts, selected examples, and student projects
2. Writing assignments include a course project and multiple developmental projects, reflections, discussion responses, and peer feedback on projects
3. Outside assignments include project planning and development, participation in online peer collaboration activities, and project development through an iterative process

When taught online, these methods may take the form of multimedia and web-based presentations. Assignments will be submitted online as well.

Discipline(s)

Instructional Design/Technology