# Introduction to Computer Coding Course No. 31001 Credit: 0.5

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| **Student name:**  |  | **Graduation Date:** |  |

Pathways and CIP Codes:Programming & software Development (11.0201)

Course Description: **Introductory Level:** Students develop an introductory understanding of fundamental computer science concepts and apply computational thinking skills to solve problems through the use of entry level coding tools for computers and/or mobile devices.

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: Click or tap here to enter text.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Solicit and integrate peer feedback as appropriate to develop or refine a program. |  |
| 1.2 | Compare different algorithms that may be used to solve the same problem, but one might be faster than the other. (e.g., different algorithms solve the same problem, but one might be faster than the other). [Clarification: Students are not expected to quantify these differences.] |  |
| 1.3 | Interpret the flow of execution of algorithms and predict their outcomes. [Clarification: Algorithms can be expressed using natural language, flow and control diagrams, comments within code, and pseudocode.] |  |
| 1.4 | Design, develop, and present computational artifacts such as mobile applications that address social problems both independently and collaboratively. |  |
| 1.5 | Develop programs, both independently and collaboratively, that include sequences with nested loops and multiple branches. [Clarification: At this level, students may use block-based and/or text-based programming languages.] |  |
| 1.6 | Create variables that represent different types of data and manipulate their values. |  |
| 1.7 | Define and use procedures that hide the complexity of a task and can be reused to solve similar tasks. [Clarification: Students use and modify, but do not necessarily create, procedures with parameters.] |  |
| 1.8 | Decompose a problem into parts and create solutions for each part. |  |
| 1.9 | Use an iterative design process (e.g., define the problem, generate ideas, build, test, and improve solutions) to solve problems, both independently and collaboratively. |  |
| 1.10 | Use a systematic process to identify the source of a problem within individual and connected devices (e.g., follow a troubleshooting flow diagram, make changes to software to see if hardware will work, restart device, check connections, swap in working components). |  |
| 1.11 | Explain the processes used to collect, transform, and analyze data to solve a problem using computational tools (e.g., use an app or spreadsheet form to collect data, decide which data to use or ignore, and choose a visualization method.). |  |
| 1.12 | Explain how computer science fosters innovation and enhances nearly all careers and disciplines. |  |
| 1.13 | Describe ethical issues that relate to computing devices and networks (e.g., equity of access, security and plagiarism), hacking, intellectual property, copyright, Creative Commons licensing. |  |
| 1.14 | Summarize security risks associated with weak passwords, lack of encryption, insecure transactions, and persistence of data. |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

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