

**New York City College of Technology/CUNY**  
**Department of Computer Systems Technology**

**CST1101–PROBLEM SOLVING WITH COMPUTER PROGRAMMING**

4 hours – 3 credits

Section:

Instructor:

Instructor's Email \_

Office Hours:

Office Location:

**Course Description:**

This course introduces the student to concepts of problem-solving using constructs of logic inherent in computer programming languages. The student studies the nature of problems, common solution approaches and analysis techniques. Students use internet tools, and flowchart interpreters to diagram problem solutions. Computer programming code is introduced to the student via high level commands, followed by flowcharting, and finally an industry software development environment.

This course welcomes students from all backgrounds, experiences, and perspectives. In accordance with the City Tech and CUNY missions, this course intends to provide an atmosphere of inclusion, respect, and the mutual appreciation of differences so that together we can create an environment in which all students can flourish. It is the instructor's goal to provide materials and activities that are welcoming and accommodating of diversity in all its forms, including race, gender identity and presentation, ethnicity, national origin, religion, cultural identity, socioeconomic background, sexuality and sexual orientation, ability, neurodivergence, age, etc. Your instructor is committed to equity and actively seeks ways to challenge institutional racism, sexism, ableism, and other forms of prejudice. Your input is encouraged and appreciated. If a dynamic that you observe or experience in the course concerns you, you may respectfully inform your instructor without fear of how your concerns will affect your grade. Let your instructor know how to improve the effectiveness of the course for you personally, or for other students or student groups. We acknowledge that NYCCT is located on the traditional homelands of the Canarsie and Lenape peoples.

**Course Objectives:**

Upon successful completion of the course, students should be able to:

1. Demonstrate understanding of the steps required in solving a problem using a computer.
2. Demonstrate broad problem-solving experience by referring to solutions from a problem bank covered during class
3. Create an application based upon object-oriented concepts using a code generation tool.
4. Demonstrate understanding of flowcharting techniques to solve an algorithm.
5. Demonstrate reading comprehension of software showing the coding paradigms of repetition loops, decision statements, arrays and modules.

**Prerequisite** – CUNY certification in mathematics, reading and writing. General knowledge of a personal computer is needed. Students may enroll in a workshop at the Academic Learning Center, located in the Atrium.

**Required Texts –**

- None

**Attendance –** Attendance is expected at every class meeting.

**Academic Integrity –** Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, and expulsion. The complete text of the College policy on Academic Integrity may be found in the catalog.

**COURSE OUTLINE**

<b><u>Week</u></b>	<b><u>Topic</u></b>
Week 1	Introduction to Problem Solving, Instruction Tool
Week 2	Using Parameters, Building Methods
Week 3	Repetition Using Loops
Week 4	Using Loop Index , Variables, Problem Solving Strategies
Week 5	Storing values in Memory
Week 6	Decision Statments
Week 7	Using Inputs and Outputs, Random Numbers
Week 8	Animation , Test 2
Week 9	Advanced problems
Week 10	Test 2 – IPRO with Word problems
Week 11	PACT and FlowCharting
Week 12	Programming in an IDE, Python Syntax
Week 13	Special Data Types, Logical Operators
Week 14	Strings , Advanced Loops
Week 15	Functions
Week 16	Final