PLATO COURSEWARE

PLATO Course Computer Programming I A

Course Overview

This one-semester course is intended as a practical, hands-on guide to help you understand the concepts and techniques associated with computer programming. This course has four Units with 15 lessons and four Unit Activities. Each lesson contains one or more Lesson Activities.

This course describes the skills and training required for careers in computer programming and the work ethics required in a computing environment. This course describes number systems, data types, and functions used in computation. In addition, this course describes types of programming paradigms and program structures. Finally, this course explains how to create web pages in HTML and how to do create a JavaScript program.

You will submit the Unit Activity documents to your teacher, and you will grade your work in the Lesson Activities by comparing them with given sample responses. The Unit Activities (submitted to the teacher) and the Lesson Activities (self-checked) are the major components of this course. There are other assessment components, namely the mastery test questions that feature along with the lesson; the pre- and post-test questions that come at the beginning and end of the unit respectively, and an end-of-semester test. All of these tests are a combination of simple multiple-choice questions and technology enhanced (TE) questions.

Course Goals

This course will help you meet the following goals:

- Identify the career options in computer programming.
- Describe the use of enterprise systems for business solutions.
- Describe number systems and convert numbers from one number system to another.
- Describe the different programming languages available to solve problems and develop systems.
- Create program structures to implement algorithms.
- Apply basic HTML commands to create and structure a web page.
- Create web pages with Cascading Style Sheets.
- Create a JavaScript program.

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Prerequisite Skills

PLATO Course Computer Programming IA has a prerequisite course, Principles of Information Technology. Also, these fundamental skills will be helpful:

- basic math knowledge
- ability to visualize and apply creativity and innovation
- general familiarity with the writing process and following guidelines

General Skills

To participate in this course, you should be able to do the following:

- Perform basic operations, and use word processing, spreadsheet, and presentation software.
- Perform online research using various search engines and library databases.
- Communicate through email and participate in discussion boards.

For a complete list of general skills that are required for participation in online courses, refer to the Prerequisites section of the Plato Student Orientation document, found at the beginning of this course.

Credit Value

PLATO Course Computer Programming IA is a 0.5-credit course.

Course Materials

- Notebook
- Computer with Internet connection and speakers or headphones
- Microsoft Word or equivalent
- Microsoft PowerPoint or equivalent

Course Pacing Guide

This course description and pacing guide is intended to help you stay on schedule with your work. Note that your course teacher may modify the schedule to meet the specific needs of your class.

Course Components and Grading Rubric

The table gives a breakdown of the weight for each component in the course. Weight represents the percentage of the total score coming from each activity.

Course Components	Count	Weight
Pretest. *Pretests are optional assessments, typically designed for credit recovery use. If a student shows mastery of a lesson's objective, the student may be automatically exempted from that lesson in the upcoming unit. Typically, teachers do not choose to employ exemptive pretests for first-time credit courses. Pretests are not included as a component of the student's final grade.*	4	0%
Module. *Each module in this course contains an interactive tutorial and an associated mastery test. Tutorials may include one or more Lesson Activities that constitute tasks associated with the tutorial. The module score comes from a student's score on the mastery test.*	15	30%
Discussion. *Online discussions allow for higher-order thinking about terminal objectives. An online threaded discussion mirrors the educational experience of a classroom discussion. Teachers can initiate a discussion by asking a complex, open-ended question. Students can engage in the discussion by responding both to the question and to the thoughts of others. Each unit in a course has one predefined discussion topic; teachers may add more discussion topics.*	4	10%
Unit Activity. *Unit Activities are at the end a unit and constitute one or more small tasks. Their purpose is to deepen understanding of key unit concepts and tie them together. Each Unit Activity includes a simple rubric. The teacher versions include both a rubric and modeled sample answers. Unit Activities are teacher graded.*	4	20%
Posttest. *The posttest appears at the end of the unit and mirrors the pretest in structure, content, and complexity.*	4	20%
End of Semester Test. *The end of semester test (EOS) appears at the end of the course. Students are delivered a few items from every tutorial in the course in order to assess the major course objectives.*	1	20%
Total	**32**	**100%**

*Teachers may manually adjust these weights if desired, per district grading requirements.

Course Structure

Unit 1: Careers and Responsibilities in Programming

Summary
In this unit, you will identify the career options in computer programming. You will also describe the effect of enterprise systems on businesses and the tools used in enterprise systems. Additionally, in this unit, you will compare ethical and unethical business practices, and describe copyright and licensing in the software industry.

Day	Activity / *Objective*	Type
1 day 1	**Syllabus and Plato Student Orientation** *Review the Plato Student Orientation and Course Syllabus at the beginning of this course.*	Course Orientation
3 days 2-4	**Careers in Computer Programming** *Identify the career options in computer programming.*	Lesson
4 days 5-8	**Enterprise Systems** *Describe the use of enterprise systems for business solutions.*	Lesson
1 day 9	**Para Jumble**	Game
4 days 10-13	**Work Ethics in a Computing Environment** *Describe the ethics and responsibilities of a computer programmer.*	Lesson
5 days 14-18	**Unit Activity/Threaded Discussion—Unit 1**	Unit Activity
1 day 19	**Posttest—Unit 1**	Assessment

Unit 2: Data Representation and Execution

Summary

In this unit, you will describe number systems used for data representation and convert numbers from one number system to another. You will describe various data types, and the way data is stored in the computer's memory. You will also perform basic arithmetic and logical operations. In the last lesson of this unit, you will explain the program execution process.

Day	Activity /*Objective*	Type
4 days 20-23	**Number Systems** *Describe number systems and convert numbers from one number system to another.*	Lesson
4 days 24-27	**Data Types** *Describe the data types used for computer programming.*	Lesson
1 day 28	**Space Jumble**	Game
3 days 29-31	**Operators- Arithmetic, Relational, and Logical** *Describe the mathematical and statistical functions and logic used in computation.*	Lesson
4 days 32-35	**Program Execution** *Explain how a computer executes a program.*	Lesson
5 days 36-40	**Unit Activity/Threaded Discussion —Unit 2**	Unit Activity
1 day 41	**Posttest—Unit 2**	Assessment

Unit 3: Computer Programming

Summary

In this unit, you will describe the different programming languages and identify the programming language suitable to solve a problem. You will implement algorithms and use procedural programming to solve a problem. In addition, you will describe the concepts of object-oriented programming. Finally, you will identify iterative and non-iterative program structures.

Day	Activity /*Objective*	Type
4 days 42-45	**Programming Languages** *Describe the different programming languages available to solve problems and develop systems.*	Lesson
4 days 46-49	**Procedural Programming** *Explain procedural programming.*	Lesson
1 day 50	**Para Jumble**	Game
4 days 51-54	**Object-Oriented Programming** *Describe the concepts of object-oriented programming.*	Lesson
3 days 55-57	**Program Structures** *Create program structures to implement algorithms.*	Lesson
4 days 58-61	**Unit Activity/Threaded Discussion —Unit 3**	Unit Activity
1 day 62	**Post test- Unit 3**	Assessment

Unit 4: Web Programming

Summary

In this unit, you will apply basic HTML commands to create a web page. You will create Cascading Style Sheets. You will describe the features of JavaScript and create a basic JavaScript program. Finally, you will create and validate forms in JavaScript.

Day	Activity /Objective	Type
4 days 63-66	**Creating Web Pages in HTML** *Apply basic HTML commands to create and structure a web page.*	Lesson
5 days 67-71	**Enhance Web Pages in HTML** *Create web pages with Cascading Style Sheets.*	Lesson
1 day 72	**Space Jumble**	Game
5 days 73-77	**Using Program Structures in JavaScript** *Describe the basic features of JavaScript and create a JavaScript program.*	Lesson
4 days 78-81	**Programming with JavaScript** *Create JavaScript code for validating forms.*	Lesson
5 days 82-86	**Unit Activity/Threaded Discussion —Unit 4**	Unit Activity
1 day 87	**Para Jumble**	Game
1 day 88	**Posttest—Unit 4**	Assessment
1 day 89	**Semester Review**	
1 day 90	**End-of-Semester Test**	Assessment

Course Map

You will achieve course level objectives by completing each lesson's instruction, assignments, and assessments. For a detailed look at how the materials meet these objectives, review the course map for Semester A.