Directions: This template must be used for all other content areas taught and for each course required for graduation, excluding language arts, math and science content areas and courses. For each other content area or course, complete the document below to include all appropriate Strands and Concepts for the course.

Curriculum Planning Document – Computer Technology			
Content Area/Grade Level: Electives/High School - Computer Programming A and B			
Course Description: Part of the Plato Courseware Career Technical Education (CTE) Library, Computer Programming combines engaging online and offline activities in a rigorous one semester course for your high school students who may be aspiring to technical careers. Building on lessons covering the software development lifecycle and software development methodologies, the course uses online discussions, activities, and lessons to lead your students through additional key topics such as quality control, system implementation and maintenance and the increasingly important issue of system security.			
	Educational Delivery Methodologies	**Evidence of Mastery**	**Comments**
Syllabus and Plato Student Orientation **Review the Plato Student Orientation and Course Syllabus at the beginning of this course.** **Careers in Computer Programming** • Explore career options in computer programming. • Enterprise Systems • Describe the use of enterprise systems for business solutions. • Para Jumble • Work Ethics in a Computing Environment • Discuss the ethics and responsibilities of a computer programmer. • Unit Activity/Threaded Discussion—Unit 1 • Posttest—Unit 1 **Number Systems**	The Edmentum LMS (PLATO Courseware) as detailed in the narrative, includes a diverse set of instructional methodologies integrated into each course. These instructional methods include: computer assisted learning systems, virtual classrooms, virtual labs, electronic field trips, electronic mail and messaging, virtual tutoring, online help desk, a wide array of formative assessments and non-computer activities. The common design elements and activities combined with a thorough initial orientation video lecture support a student's quick understanding of the delivery	Mastery for each course will be based on the student meeting the prescribed Performance, Participation, and Progress requirements. The Program is designed to foster high expectations for staff and students. The goal for all students is to meet 100% of the expected progress and 100% of the expected weekly participation. The desired performance goal for all students is to attain a score of 100% on all assignments. The minimum that will be accepted on each assignment	

• Explore number systems used for data representation. • Data Types • Explore the data types used for computer programming. • Space Jumble • Operators- Arithmetic, Relational, and Logical • Describe the mathematical and statistical functions and logic used in computation. • Program Execution • Analyze how a computer executes a program. • Unit Activity/Threaded Discussion —Unit 2 • Posttest—Unit 2 **Programming Languages** • Describe different programming languages available to solve problems and develop systems. • Procedural Programming • Explain procedural programming. • Para Jumble • Object-Oriented Programming • Understand the concepts of object-oriented programming. • Program Structures • Create program structures to implement algorithms. • Unit Activity/Threaded Discussion —Unit 3	system. This immediate understanding enables a student to focus on the content right from the beginning of the first lesson. Each course utilizes a variety of methods and has the flexibility to allow teachers to modify the program to suit individual student learning needs. The Edmentum LMS (PLATO Courseware) enables the teacher to employ numerous educational delivery options for each online course. The ability to modify delivery methods empowers teachers to efficiently and effectively support differentiation of instruction, customized assessments, and supplementation of course material for different learning styles. Providing online students a choice in how they absorb content is considered a key to supporting different learning styles. The primary delivery method for the proposed content, is web-based online delivery. Based on needs identified by teacher	and assessment is 70%. **<u>Assessment and Testing</u>** Best practices in assessment and testing call for a variety of activities to evaluate student learning. Multiple data points present a more accurate evaluation of student strengths and needs. **Formative and Summative Assessments** contained in the web-delivered content, which include authentic learning and objective assessments are used to show mastery: • Unit pretests (typically designed for credit recovery use) • Mastery tests • Lesson Activities • Unit Activities • Online Threaded Discussions • Unit Post-Tests • End-of-Semester Exam **<u>Authentic Learning Assessments</u>**: Of the assessment tools available in this course, three are designed	

• Posttest- Unit 3 **Creating Web Pages in HTML** • Apply basic HTML commands to create and structure a Web page. • Enhance Web Pages in HTML • Enhance Web pages. • Space Jumble • Using Program Structures in JavaScript • Explore the basic features of JavaScript. • Programming with JavaScript • Create JavaScript code for validating forms. • Unit Activity/Threaded Discussion —Unit 4 • Para Jumble • Posttest—Unit 4 **Semester Review** **End-of-Semester Test** **Begin Semester B** **Syllabus and Plato Student Orientation** **Review the Plato Student Orientation and Course Syllabus at the beginning of this course.** **The Software Development Life Cycle** • Explore the different phases of the software development life cycle (SDLC). • Software Development Methodologies • Describe and compare different methods of software development, such as the	monitoring, formative and summative assessment, or student request, the delivery method can be modified in numerous ways. **<u>Flexible deliverability</u>** **All online materials are printable.** The interface and font of the content can be adjusted to minimize the amount of ink used in printing. **eNotes**: In lieu of paper notes, the students have the option to take eNotes while listening to & interacting with the tutorials or while studying the online readings and content. These notes can be made available at the end of lesson or course assessment at the discretion of the teacher and the individual student. **Secure internal messaging system:** provides the option for synchronous or asynchronous support of student learning. **Teacher online office hours:** Teachers provide four hours of	specifically to address higher-level thinking skills and operations: Lesson activities, unit activities, and discussions. These authentic learning activities allow students to develop deep understanding and provide data for the teacher to assess knowledge development. They also provide a tool for assessing identified Common Core mathematical practices, inquiry skills, STEM skills, and 21st century skills. The following comments address their use for assessment. • **Lesson Activities** immerse the student into one or more in-depth problems that center on developing a deep understanding of the learning objective. All Lesson Activities in this course are self-checked by the student; however, it is possible to submit this work for teacher grading on paper, by email, or by creating a drop box activity in the	

waterfall method and the rapid prototyping method. • Requirements Gathering and Analysis • Describe and analyze client and project requirements. • Space Jumble • Planning • Describe various tasks in the planning phase of the SDLC. • Unit Activity/Threaded Discussion—Unit 1 • Posttest—Unit 1 **Design Methodologies** • Explore different methodologies and tools for developing a software design. • Unified Modeling Language • Create a design document using Unified Modeling Language • (UML). • Para Jumble • Coding • Describe various tasks in the coding phase of the SDLC. • Unit Activity/Threaded Discussion —Unit 2 • Posttest—Unit 2 **Testing** Describe different types of testing. • Test Plan and Test Scripts • Describe how to use a test plan and test scripts for testing.	online synchronous office hours. Additional synchronous time can be requested by students as needed. **Phone communication as required.** Teachers will have access to phone numbers and refer students and parents to a phone conference as required. **Supplemental assignments:** The content can be delivered by all lessons or one lesson at a time. Teachers may determine that an alternative assignment that covers the same objective may be appropriate. These alternative assignments will be approved by the Administration and delivered electronically to the student. **Supplemental resource links:** Students may seek out additional information or guidance about a lesson objective by utilizing a personal search engine such as Google. Teachers will also collect and send out additional resource links as the need arises. All links will be submitted for approval by the administrator.	course learning path. • **Unit Activities** are similar to Lesson Activities, but more time intensive and require a more integrative understanding of the unit's objectives. Unit activities are teacher graded and submitted through the drop box. These activities allow the instructor to score work on a scale of 0 to 100. A 10-point suggested rubric is provided to both the student and the teacher for this purpose. A minimum score of 70% is required. • **Discussions** encourage students to reflect on concepts, articulate their thoughts, and respond to the views of others. Thus, discussions help teachers assess students' critical-thinking skills, communication skills, and overall facility with the	

• Space Jumble • Quality Control • Describe how quality control helps in improving the processes and the quality of the software. • Unit Activity/Threaded Discussion —Unit 3 • Posttest- Unit 3 **Implementation and Maintenance** • Explore how a system is implemented in a production environment and how companies provide product maintenance for customers. • Types of Documentation • Explore different types of documentation used in the software development life cycle. • Para Jumble • Need for Computer Applications • Information Security Risks and Threats • Explore different types of security risks and threats to computer systems. • Disaster Recovery • Explore different methods to recover from security risks and threats. • Unit Activity/Threaded Discussion —Unit 4 • Space Jumble • Posttest—Unit 4 **Semester Review** **End-of-Semester Test**	**Practice exercises:** The teacher may assign practice exercises in addition to the online content. The teacher would have the opportunity to weight these additional assignments as part of the lesson performance score, as part of the participation grade, or as extra credit. Any editing or adjustment of the student's score requires a full justification in the notes section at the time the teacher makes the change. **Universal access:** The content is available at all times and on all days. Students will be able to access their online content as long as they have access to the Internet. Those that seek help from someone that may not have a computer or Internet may print the material and seek help while working on the paper version. **Learning Aids:** Learning aids within the courseware that are designed to assist students include: • eNotes • Resource Folder	unit concepts. Each unit in this course has one predefined discussion topic. Instructors can customize the course, however, to include additional discussion topics. Online discussions may use whatever rubric the instructor sets. A minimum score of 70% is required. **<u>Objective Assessments.</u>** There is a specific learning objective associated with each lesson, which is assessed through objective assessments at multiple points during the course: at the end of the specific lesson, at the end of the unit, and at the end of the semester. Additionally, there are optional unit pretests. • **Unit pretests** are optional multiple-choice assessments, typically designed for credit recovery use. If a student shows mastery of a lesson's objective (70%	

	• Dictionary • Text to Speech (content reader) • Translator (16 languages) • Scientific Calculator • Math tools (graphing tool, histogram, scatter plot, stem &leaf) Students will be guided to these tools at the time of enrollment, during the video orientation, and as the need is identified by the teacher	proficiency), the student will be automatically exempted from that module in the upcoming unit. • **Mastery tests** at the end of each lesson provide the instructor and the student with clear indicators of areas of strength and weakness. These multiple-choice tests are taken online and contain randomly generated questions. A minimum score of 70% is required and a student may retake the mastery tests as many times as needed to demonstrate at least a 70% proficiency. • **Unit posttests** help instructors track how well students have mastered the unit's content. The tests are multiple-choice and are provided online. A minimum score of 70% is required.	

		• **End-of-semester tests** assess the major objectives covered in the course. The End-of-Semester Test will be proctored (required) and a minimum score of 70% is required. Remediation assignment will be provided if a student does not meet the 70% requirement, and then a new End-of-Semester test will be administered. By combining the unit pretest (if applicable) and unit posttest information with the end-of-semester test results, the instructor will gain a clear picture of student progress. The tests are multiple-choice (randomly generated questions) and are provided online. **Remediation:** Students that attain less than 70% on assignments will be required to complete a remediation assignment and make corrections	

		to the assignments and eNotes. Teachers will work with the student to assist and reteach as needed. **Instructional Feedback:** Teachers will provide instructional feedback in teacher-graded assignments. Students will email the teacher with confirmation that the teacher's comments and instructional was read and understood. **A midterm project** is required. Examples include: • Virtual field trip • Group or individual service learning activities • Video presentation • Web portfolio • Book Report • Research Project **A final research paper** is required. • It relates to or enriches course content • Students will have multiple topic options • Students may request an	

		alternate subject (in a timely manner & appropriately) • MLA format is required • Six traits rubric used **<u>Scoring Rubric will vary based on type of activities in each course.</u>** **<u>Example:</u>** • Participation and Progress = 10% • Discussions = 10% • Drop Box (Unit/ Lesson Activities) = 20% • Post Unit Tests = 20% • Midterm Project = 10% • End-of-Semester Test = 20% • Final Research Paper = 10% Total=100% **<u>Curriculum Reports:</u>** Edmentum LMS (PLATO Courseware) provides a wide array of reports that provide useable data concerning mastery of each lesson and assignment. Reports include: • Learner Progress Report by Learner • Learner Progress Report by Class	

		• Learner Daily Usage by Learner • Learner Daily Usage by Class and Assignment • Curriculum Items Response Report Curriculum Strengths and Needs by Class	