Florida Department of Education
Curriculum Framework

Program Title: **Information & Communications Technology (ICT) Essentials**
Program Type: **Orientation/Exploratory**
Career Cluster: **Information Technology**

Program Number	9009100
CIP Number	149009100M
Grade Level	6-8
Program Length	Year
Teacher Certification	Refer to the **Program Structure** section.
CTSO	FBLA, BPA
CTE Program Resources	http://www.fldoe.org/academics/career-adult-edu/career-tech-edu/program-resources.stml

Purpose

The purpose of this course is to provide students with the computer, digital, and information technology skills necessary for success in their future academic and occupational goals. In addition to fundamental computer information, the content includes but is not limited to digital technologies associated with web development, multimedia, word processing, spreadsheet, database, Internet communications, cybersecurity, and computer programming.

Instruction and learning activities are provided in a laboratory setting using hands-on experiences with the equipment, materials and technology appropriate to the course content and in accordance with current practices.

Program Structure

This program is a planned sequence of instruction consisting of three course(s).

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the course structure:

9009110	Information & Communications Technology (ICT) Essentials 1	BUS ED 1 @2 COMPU SCI 6 INFO TECH 7G WEB DEV 7G	Year
9009120	Information & Communications Technology (ICT) Essentials 2		Year
9009130	Information & Communications Technology (ICT) Essentials 3		Year

Standards

After successfully completing this program, the student will be able to perform the following:

1.0 Identify computer components and their functions.
2.0 Demonstrate knowledge of different operating systems.
3.0 Demonstrate an understanding of Internet safety and ethics.
4.0 Demonstrate proficiency using the Internet to locate information.
5.0 Demonstrate proficiency in using word processing software.
6.0 Demonstrate proficiency in using presentation software.
7.0 Demonstrate proficiency in using graphics software.
8.0 Demonstrate appropriate use of email.
9.0 Demonstrate knowledge of safety and privacy practices for online communication.
10.0 Develop and apply fundamental spreadsheet skills.
11.0 Develop and apply database skills.
12.0 Demonstrate skill in using video editing software and equipment.
13.0 Demonstrate proficiency in using audio editing software (e.g., Audacity).
14.0 Demonstrate proficiency locating, gathering, and preparing textual, graphical, and image-based web content.
15.0 Use Web 2.0 or Internet-based collaborative technology (e.g., Wikis, Wimba, Moodle, Edmodo, Facebook, Schoology, Gaggle) to facilitate a web development or research project.
16.0 Demonstrate an understanding of computer networks.
17.0 Demonstrate proficiency in webpage development.
18.0 Demonstrate proficiency in game development.
19.0 Demonstrate proficiency in basic programming.

Florida Department of Education
Student Performance Standards

Course Title: **Information & Communications Technology (ICT) Essentials 1**
Course Number: **9009110**
Course Length: **Year**
Grade: **6-8**

Course Description:

This course introduces students to core concepts associated with computers and their use. The content includes hands-on opportunities to explore various software applications.

CTE Standards and Benchmarks	
1.0	Identify computer components and their functions. The student will be able to:
1.1	Describe what defines a computer and ways a computer can be used.
1.2	Identify the internal components of a computer (e.g., case, CPU, RAM, power supply, hard drive, motherboard, expansion cards, cabling).
1.3	Identify and know how to connect various computer input devices (e.g., mouse, keyboard, phone, camera, scanner, microphone, game controller, stylus, barcode reader finger print scanner, GPS device, touch pad, graphics tablet) and describe their use.
1.4	Identify and know how to connect various computer output devices (e.g., monitor, printer, projector, speakers, headphones) and describe their use.
1.5	Identify and know how to connect various storage devices (e.g., flash drive, external hard drive (SSD, network drive), memory card, discs, cloud).
2.0	Demonstrate knowledge of different operating systems. The student will be able to:
2.1	Compare and contrast various operating systems used in a computer and mobile devices (i.e., Windows, OS (Apple), UNIX, Android, iOS).
2.2	Describe and use conventional file naming conventions.
2.3	Demonstrate proficiency with file management tasks (e.g., folder creation, file creation, backup, copy, delete, open, save).
2.4	Be able to identify file types by extension (e.g., .doc, .txt, .wav, xls).
2.5	Demonstrate proficiency in using gadgets, icons, and taskbars and other pre-loaded operating system programs. (e.g., calculator, text editor, clock, volume controls, adding icons and shortcuts to taskbar and shortcut menus).
3.0	Demonstrate an understanding of Internet safety and ethics. The student will be able to:
3.1	Describe risks associated with social networking sites (e.g., FaceBook, Snapchat, Instagram, Twitter) and ways to reduce these risks.
3.2	Define “privacy” and relate it to the term “digital footprint”.
3.3	Practice cybersafety techniques to protect your personal information when using internet searches, email, chat rooms, and social network websites.

	3.4	Describe cyberbullying, its impact on perpetrators and victims and ways to respond.
	3.5	Describe risks associated with sexting (including legal issues, social consequences), and discuss methods for response, reporting, and prevention.
	3.6	Describe risks associated with online gaming, and identify ways to reduce these risks.
	3.7	Discuss issues related to downloading music or videos from the Internet, including unethical vs. illegal actions.
	3.8	Compare and contrast rules for copyright and fair use, especially in relation to using online resources for school and educational purposes.
	3.9	Distinguish between viruses and malware and discuss their impact on personal privacy and computer operation.
	3.10	Describe common threats used to spread malware and viruses, including phishing, pharming, Trojans, spyware, malicious sites, “free” downloads.
	3.11	Perform an antivirus scan on a computer system to check for viruses and malware.
	3.12	Describe strong password practices.
	3.13	Practice cyber safety techniques to protect your computer system when using Internet searches, email and social network websites.
	3.14	Identify security issues related to mobile phones, including personal information compromised if a phone is lost or stolen.
	3.15	Adhere to Acceptable Use Policies when accessing the Internet.
4.0	Demonstrate proficiency using the Internet to locate information. The student will be able to:	
	4.1	Identify and use web terminology (WWW, Web Browser, Internet, Web Server, Web Page, Address Bar, Hyperlinks, Navigation Buttons, Search Bar, Bookmarks/Favorites, Tab, Downloading, Plug-ins, Social Media Plug-ins).
	4.2	Define Universal Resource Locators (URLs) and associated protocols (e.g., http, ftp, telnet, mailto).
	4.3	Compare and contrast the types of Internet domains (e.g., .com, .org, .edu, .gov, .net, .mil).
	4.4	Demonstrate proficiency using search engines, including Boolean search techniques.
	4.5	Demonstrate proficiency using various web tools (e.g., downloading of files, transfer of files, telnet, PDF).
	4.6	Compare and contrast the roles of web servers and web browsers.
	4.7	Evaluate online information for relevance, credibility and quality using basic guidelines and indicators (e.g. authority, affiliation, purpose, bias, date).
	4.8	Identify and apply copyright and fair use guidelines, and explain plagiarism as an ethical and legal violation.
	4.9	Incorporate results from Internet searches into a research project (e.g., report, summary).
	4.10	Download images as needed to support a research project, complying with copyright notices.
	4.11	Properly cite Internet sources used to obtain information for a research project.
5.0	05.0	Demonstrate proficiency in using word processing software. The student will be able to:
	5.1	Describe the general functions of word-processing software, including benefits for document creation, commonly used word-processing applications.
	5.2	Define the term “cloud computing,” and explain benefits of creating and storing word-processing documents online.
	5.3	List and describe common word processor interface tools and features.
	5.4	Identify common keyboard shortcuts used in word processors, and explain the benefits of using shortcuts.
	5.5	Format the page setup of a document, including margins, line spacing, indents, headers vs. footers, orientation.
	5.6	Explain printing options in a word processor, including shrink-to-fit, 2-sided printing, and document orientation.
	5.7	Copy, paste and move text within a document using mouse, menu and keyboard techniques.

5.8	Copy, paste and move text among multiple documents using mouse, menu and keyboard techniques.
5.9	Modify document view settings to display close-up, single and multiple pages.
5.10	Define the term “format” as it relates to word processing.
5.11	Format text using styles and font tools in a word processor.
5.12	Format a document using multi-level heading styles to enable an outline view (e.g. document map, navigation pane) in a word processor.
5.13	Create a table of contents using auto-generation tools and techniques in a word processor.
5.14	Insert page breaks in a document.
5.15	Create source citations and/or a bibliography in a document.
5.16	Insert a current date and time stamp into a document.
5.17	Use word processor tools to determine the number of pages, words and characters in a document.
5.18	Use spell check, grammar check, thesaurus, and find and replace to edit a document.
5.19	Insert and modify sizing of images in a word-processing document.
5.20	Position an image relative to text in a document, using various text-wrapping options (inline, square, tight).
5.21	Use word-processing drawing tools to create pre-formatted shapes that enhance a document’s content.
5.22	Use word-processor drawing tools to create a visual representation of information (e.g. SmartArt), such as diagram, flow chart.
5.23	Apply a column layout to text in a document as appropriate for the content (e.g., article, newsletter).
5.24	Apply simple numbered and bulleted lists in a document to make content easier to read and understand.
5.25	Format numbered and bulleted lists to produce multi-level outline in a document.
5.26	Create a simple brochure and/or flyer using a template.
5.27	Create a table in a word-processing document, and enter and move data in the table.
5.28	Convert a body of text into a table structure in a document to make content easier to read and understand.
5.29	Define “collaboration” and explain ways that users can collaborate on word-processing documents, including installed software vs. cloud-based software, real-time collaboration, auto save, sharing tools, revision history.
5.30	Use the translation tool in a word processor to translate text in a document from English into another language, and vice versa.
5.31	Add comments to a document when reviewing and/or editing content.
5.32	Revise a document using editing tools (e.g. Track Changes) in a word processor, and accept or reject changes as appropriate.
6.0	Demonstrate proficiency in using presentation software. The student will be able to:
6.1	Describe presentation software and the ways it can be used.
6.2	Create and/or modify a “slide master” or template to apply a consistent appearance to a presentation.
6.3	Add and format titles, subtitles and talking points in presentation slides.
6.4	Add slide numbers and/or date and time codes to presentation slides.
6.5	Insert and format images/graphics in presentation slides.
6.6	Insert new or duplicate slides in a presentation.
6.7	Modify slide transitions in a presentation to include animation.
6.8	Insert and/or modify sound settings and timing in a presentation.
6.9	Modify the sequence of slides in a presentation.

	6.10	Produce a presentation that includes text, graphics and images, and present it.
	6.11	Modify a presentation's setup to repeat (i.e., loop) the presentation continuously.
7.0	Demonstrate proficiency in using graphics software. The student will be able to:	
	7.1	Describe graphics software and the ways it can be used.
	7.2	Compare and contrast vector and raster images.
	7.3	Identify image file formats for photos and graphical art (e.g., TIFF, BMP, PSD, EPS, JPEG, GIF, PNG), and specify which formats are supported on the web.
	7.4	Define terms related to the creation and display of graphical images (e.g., raster, vector, transparency, opacity, cropping, lasso, magic wand, marquee, canvas size, flattened, blur, dodge, sharpen, staking order, free transform, lossless, adjustments, move, clone, zoom, layers, filter, distort).
	7.5	Create images with effects using different tools, brushes, adjustments and filters available in graphics software.
	7.6	Copy and paste graphical images.
	7.7	Modify shapes and colors in a graphical image.
	7.8	Save and export a digital photograph in a format that provides the best image quality and file size for Internet use.
	7.9	Create a progressive slide presentation using graphical design/layout template features (e.g., SmartArt) and animated transitions.
	7.10	Use a portable digital video device (e.g., mobile phone, flip camera) or similar online tools to shoot video files, and transfer them to a computer.
	7.11	Use video-editing software to produce a slide show or movie.
	7.12	Create a multimedia presentation that incorporates edited video, animation, music and/or narration, and that applies principles of good design, smooth transitions and effective message delivery.
8.0	Demonstrate appropriate use of email. The student will be able to:	
	8.1	Define "email "and describe the functions and advantages as a form of communication.
	8.2	Identify components of an email message.
	8.3	Explain the format of an email address (i.e., user name, @ symbol, domain).
	8.4	Attach a file to an email message.
	8.5	Reply to and forward an email message to one or more addressees.
	8.6	Use the Internet to perform email activities (i.e., web-based email).
	8.7	Identify the appropriate use of email and demonstrate related email etiquette.
	8.8	Perform email organization and cleanup (e.g., trash, flags, create folders).

Florida Department of Education
Student Performance Standards

Course Title: **Information & Communications Technology (ICT) Essentials 2**
Course Number: **9009120**
Course Length: **Year**
Grade: **6-8**

Course Description:

This course builds on the previous course and provides greater depth and more complex concepts and the skills/knowledge to master these concepts. Students will be provided opportunities to extend their skills with various software applications by creating more complex documents and using more complex functions.

CTE Standards and Benchmarks	
9.0	Demonstrate knowledge of safety and privacy practices for online communication. The student will be able to:
9.1	Define “privacy” and relate it to the term “digital footprint.”
9.2	Describe the risks of communicating on social networking sites (e.g. Facebook, Twitter, Instagram) and identify ways to communicate safely.
9.3	Distinguish between copyright infringement, plagiarism and fair use in an educational setting and in relation to school projects, especially with music and pictures.
9.4	Describe online communication practices that contribute to cyberbullying.
9.5	Practice safe online communication techniques with Internet searches, email, chat rooms, and other social network websites.
9.6	Follow an Acceptable Use Policy (AUP) when accessing the Internet.
10.0	Develop and apply fundamental spreadsheet skills. The student will be able to:
10.1	Define “spreadsheet” and describe ways it may be used.
10.2	Identify the parts of the spreadsheet display, including cells, columns and rows, cell references, cell range.
10.3	Create and navigate through multiple spreadsheets in a file.
10.4	Insert and format various types of data (text, numeric, date/time) in a spreadsheet cells.
10.5	Select multiple cells, including adjacent and non-adjacent ranges, using mouse and keyboard techniques.
10.6	Cut, copy, and paste information from one or more cells to another part of the spreadsheet.
10.7	Use the undo and redo tools in a spreadsheet.
10.8	Apply and modify cell formatting for currency, date and percentage values.
10.9	Resize column width and row height in a spreadsheet.
10.10	Insert and delete columns and rows in a spreadsheet.
10.11	Merge and unmerge cells in a spreadsheet.
10.12	Apply shading and borders to a spreadsheet.
10.13	Describe the purpose of a table and how it relates to a spreadsheet.

	10.14	Create and print a table and/or range that displays and sums the values of different data types.
	10.15	Identify various types of charts (e.g., line, bar, pie, scatter) and common chart components (e.g., vertical axis, horizontal axis, legend), and explain when to use each chart type.
	10.16	Create a chart from existing data and format the pieces (data set), change the background color, and add appropriate titles and a legend.
	10.17	Use the auto sum function to calculate the values of multiple cells.
	10.18	Insert common functions (SUM, AVERAGE, COUNT, MAX, MIN) and simple mathematical formulas which include addition, subtraction, multiplication, or division into a spreadsheet.
	10.19	Distinguish between absolute and relative cell references in a spreadsheet.
	10.20	Use the sort function to organize information numerically or alphabetically, including multiple levels of sorting.
	10.21	Use the filter function to display spreadsheet data based on specific criteria.
	10.22	Use conditional formatting to highlight text in a spreadsheet.
11.0	Develop and apply database skills. The student will be able to:	
	11.1	Define database and describe real-world uses (e.g. search engines, schools, drivers licenses & car registrations, hospitals, retail, law enforcement).
	11.2	Distinguish between databases and spreadsheets.
	11.3	Identify advantages of using a database instead of alternatives (e.g., spreadsheets, electronic documents, paper).
	11.4	Define “Big Data” and describe how it is used in advertising.
	11.5	Identify the components of a database.
	11.6	Distinguish between fields and records in a database.
	11.7	Describe the basic data types and formats used in a database.
	11.8	Distinguish between a table and a query.
	11.9	Identify database keys, including primary and foreign.
	11.10	Identify the relationships between tables in databases (i.e., one-to-one, one-to-many, many-to-many).
	11.11	Distinguish between a query and a report.
	11.12	Identify various report types.
	11.13	Describe Structured Query Language (SQL) and discuss its use with databases.
	11.14	Identify and compare various database applications, including Microsoft Access, MySQL, Oracle.
	11.15	Create a database table that uses multiple data types.
	11.16	Add, Edit, and Delete records from a database table.
	11.17	Sort records in a database query or table.
	11.18	Troubleshoot common database errors, including data type errors, query syntax errors.
	11.19	Create a basic select query in one table.
	11.20	Create an action query to manipulate data.
	11.21	Create a query using primary and foreign keys.
	11.22	Create a simple table join.
	11.23	Import and export data from a database into a spreadsheet.

	11.24	Create relevant reports from a database.
12.0	Demonstrate skill in using video editing software and equipment. The student will be able to:	
	12.1	Demonstrate ability to operate a video camera (e.g., Flip camera, cell phone).
	12.2	Write storyboards to depict a one minute video segment.
	12.3	Determine appropriate lighting needs.
	12.4	Create video shots sufficient to produce a one minute video.
	12.5	Identify the functions and benefits of the digital video software interface.
	12.6	Demonstrate ability to edit, cut, erase, and insert video.
	12.7	Edit video as needed to achieve desired message and length.
	12.8	Describe a first complete run-through of the video production process.
	12.9	Characterize the qualities of effective communication in a completed video.
	12.10	Upload finished video files to a website.
13.0	Demonstrate proficiency in using audio editing software (e.g., Audacity). The student will be able to:	
	13.1	Identify the functions and benefits of the audio editing software interface.
	13.2	Demonstrate ability to edit, cut, erase, and insert audio.
	13.3	Edit audio as needed to achieve desired message and length.
	13.4	Prepare a 30 second to 1 minute audio commercial project.
14.0	Demonstrate proficiency locating, gathering, and preparing textual, graphical, and image-based web content. The student will be able to:	
	14.1	Define the elements of a webpage and what makes a good webpage.
	14.2	Describe effective text and image content for webpages based on how visitors use the web.
	14.3	List guidelines and conventions for effective text on webpage.
	14.4	Explain the inverted pyramid model of newspaper journalism and how it applies to web content.
	14.5	Use word-processing software to create effective written content for a webpage.
	14.6	Create and/or edit message-driven image content for a webpage using graphics software.
	14.7	Access graphics through various recourses (e.g., scanner, digital camera, CD-ROM, clipart, copyright-free online graphics).
	14.8	Plan the content and design of a basic webpage using strategies for effective Web communication, including brainstorming, determining audience, choosing content and media types, using white space.

Florida Department of Education
Student Performance Standards

Course Title: **Information & Communications Technology (ICT) Essentials 3**
Course Number: **9009130**
Course Length: **Year**
Grade: **6-8**

Course Description:

This course builds on the previous two courses and provides greater depth and more complex concepts and the skills/knowledge to master these concepts. In addition to working with network concepts, students will be provided opportunities to further extend their skills with various software applications by creating more complex documents and using more complex functions and technologies. Students will continue their exposure to computer programming and the creation of more complex computer programs. For the programming instruction, the use of Alice from Carnegie Mellon University is encouraged as it is a highly engaging program, includes instructional materials, and is available at no cost.

CTE Standards and Benchmarks	
15.0	Use Web 2.0 or Internet-based collaborative technology (e.g., Wikis, Wimba, Moodle, Edmodo, Facebook, Schoology, Gaggle) to facilitate a web development or research project. The student will be able to:
15.1	Create and use a collaborative environment for communicating and sharing among project team members.
15.2	Create and use a social media page (e.g., Wikis, Wimba, Moodle, Edmodo, Facebook, Schoology, Gaggle) to share and publish project components (e.g., content, images, graphics, videos) for gauging visitor reaction and obtaining feedback.
16.0	Demonstrate an understanding of computer networks. The student will be able to:
16.1	Define “network” and give examples of networks used at home, school, and work.
16.2	Compare types of networks, including LAN, WAN, MAN, VPN, intranet, extranet, the Internet.
16.3	Compare common network topologies, including bus, star, ring, mesh.
16.4	Compare various network models and their advantages, including client/server, mainframe/terminal, peer-to-peer.
16.5	Compare various methods and media for network connections, including broadband, wireless, Bluetooth, cellular, satellite.
16.6	Describe the functions of various network hardware devices, including NIC, hub, switch, router, bridge, gateway, access point.
16.7	Describe the purpose of protocols, and identify the protocols commonly used in networks, including TCP/IP, DHCP, DNS, HTTP, FTP, IMAP, POP, SMTP.
16.8	Describe the purpose and function of IP addressing and distinguish between public and private IP addresses.
16.9	Describe the OSI reference model and its layers, including tracing the flow of data between two network nodes through the OSI layers.
17.0	Demonstrate proficiency in webpage development. The student will be able to:
17.1	Identify website domains, and relate a site’s domain to its purpose.
17.2	Relate basic components of a webpage (e.g. color, space, written content, typography, images, links, multimedia) to aesthetic, functional and/or usable design principals.
17.3	Define aesthetic design, and explain how aesthetics can affect a visitors’ perception of a website’s information.
17.4	Demonstrate knowledge of color wheel concepts and effective use of color on a website.
17.5	Compare functional and usable design principles, and explain how usability can affect a website’s success.
17.6	Critique the aesthetic design, usability and accessibility of sample websites.
17.7	Define multimedia, and identify its role in webpage interactivity.
17.8	Explain the primary steps of the website planning process.
17.9	Apply the website planning process to plan the design for basic website.
17.10	Build the site navigation scheme for a website.
17.11	Compare webpage creation using an HTML text editor to using a graphical user interface (GUI) editor.
17.12	Compare website creation using an online site builder, an offline site builder and a content management system (CMS).

	17.13	Modify an existing webpage template to create an effective look and feel for a website.
	17.14	Create a website using a template.
	17.15	Define “HTML (Hypertext Markup Language)” and related terms, including tag vs. element, container vs. empty tag, block-level vs. inline element, attribute value, semantic tag.
	17.16	Identify HTML elements required to create webpage structure.
	17.17	Create webpages using basic HTML tags (e.g., headings, lists, character styles, text alignment, tables, comments).
	17.18	Use HTML to create hyperlinks to external sites.
	17.19	Use HTML to insert common image file formats into webpages, and use an image as a hyperlink.
	17.20	Explain Cascading Style Sheet (CSS) technology.
	17.21	Apply CSS styles to an HTML page.
	17.22	Create and/or edit animation files, and integrate them into a webpage.
	17.23	Create and/or edit video files, and integrate them into a webpage.
	17.24	Use Dynamic HTML (DHTML) to enhance webpage interactivity.
	17.25	Create and use a wiki or similar tool for collaborating among project team members.
	17.26	Create and use a social media page (e.g., Facebook, Wimba, Edmodo) and/or a blog to share content and collaborate on projects.
	17.27	Review webpage content, verify copyright restrictions, and create meta-data before publishing a site to the internet.
	17.28	Test webpages for display, functionality, and accessibility before publishing a site to the Internet.
	17.29	Validate webpage code using W3C validation tools before publishing a site to the Internet.
	17.30	Describe network issues relating to websites, including bandwidth, compression, streaming, web hosting.
	17.31	Explain the purpose of File Transfer Protocol (FTP) in accessing information on the Internet.
	17.32	Publish a website using FTP.
	17.33	Describe website security methods, including secure server vs. unsecured served, SSL, SSH, encryption.
18.0	Demonstrate proficiency in game development. The student will be able to:	
	18.1	Describe the role of games in modern society (e.g., education, task training, social networking, therapy, recreation).
	18.2	Identify various types of games (e.g., chance, skill, knowledge, role-playing, and storytelling).
	18.3	Identify the steps of the design process for creating a game.
	18.4	Apply the design process to solving a problem.
	18.5	Analyze (deconstruct) existing games.
	18.6	Identify the tools and skills needed for creating games.
	18.7	Identify design criteria and constraints.
	18.8	Create storyboards to model a game’s program flow and functionality.
	18.9	Identify the programmer’s role in creating games.
	18.10	Identify common programming languages and applications used to create computer games.
	18.11	Compare sequential, iteration (loop) and selection programming structures.
	18.12	Define the term algorithm (i.e., a set of repeatable steps) and how it applies to problem solving.
	18.13	Create an algorithm to solve a problem or complete a task.
	18.14	Use pseudo-code to model a game program’s flow.

	18.15	Define logic errors and identify them in a game program or model.
	18.16	Explain the types and uses of variables in game programming.
	18.17	Describe basic Boolean concepts, including logical operators, order of precedence, expressions.
	18.18	Describe the use of events, event handlers and functions in game programming.
	18.19	Describe the use of parameters and arguments in game programming.
	18.20	Describe the use of objects, classes and instances in game programming.
	18.21	Describe the use of properties and methods with objects in game programming.
	18.22	Write appropriate code to create a simple game using structured programming.
	18.23	Test and evaluate the game program you created.
	18.24	Modify the game program as needed to solve a problem.
	18.25	Create an animated object (i.e., sprite) to be used in a game program.
	18.26	Use programming code to control the behavior of an animated object (i.e., sprite) in a game program.
19.0	Demonstrate proficiency in basic programming. The student will be able to:	
	19.1	Define “programming” and discuss its role in computing.
	19.2	Explain the binary representation of data and programs in computers.
	19.3	Distinguish among the three types of programming languages (machine, assembly, high-level), and give examples.
	19.4	Compare and contrast languages that are usually compiled (e.g., C++, Java) and interpreted (e.g., JavaScript, Python).
	19.5	Describe the structure of a simple program, and explain why sequencing is important.
	19.6	Write a program design document using pseudo-code that shows program flow.
	19.7	Explain strategies used in problem-solving, and relate them to computer programming.
	19.8	Define the term “algorithm,” and explain how it relates to problem-solving.
	19.9	Explain the three types of programming errors (i.e., logic, syntax, runtime), and describe the forms of testing that can be used to locate and debug errors.
	19.10	Solve a problem using logic by planning a strategy, designing and testing a hypothesis, and/or creating a set of step-by-step instructions to perform a task.
	19.11	Define “structured programming” and discuss the advantages of this approach.
	19.12	Define the three main programming control structures used in structured programming: sequential, selection (decision), and iteration (loops).
	19.13	Describe iterative programming structures (e.g., while, do/while) and how they are used in programming.
	19.14	Describe selection programming structures (e.g., if/then, else) and explain the logic used for if statements.
	19.15	Write a simple program in pseudo-code that uses structured programming to solve a problem.
	19.16	Explain the types and uses of variables in programming.
	19.17	Explain basic object-oriented concepts.
	19.18	Describe fundamental Boolean concepts, including Boolean algebra, operators, logic.
	19.19	Create animated objects using a high-level programming environment (e.g., Alice, Greenfoot) to control their behavior.
	19.20	Create a simple program that uses animated objects.
	19.21	Convert a simple program from pseudo-code into a common high-level programming environment (e.g. Alice, Greenfoot).

19.22	Troubleshoot and debug errors in code.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Florida Standards for English Language Development (ELD)

English language learners communicate for social and instructional purposes within the school setting. ELD.K12.ELL.SI.1

English Language Development (ELD) Standards Special Notes:
Teachers are required to provide listening, speaking, reading and writing instruction that allows English language learners (ELL) to communicate for social and instructional purposes within the school setting. For the given level of English language proficiency and with visual, graphic, or interactive support, students will interact with grade level words, expressions, sentences and discourse to process or produce language necessary for academic success. The ELD standard should specify a relevant content area concept or topic of study chosen by curriculum developers and teachers which maximizes an ELL's need for communication and social skills. For additional information on the development and implementation of the ELD standards, please contact the Bureau of Student Achievement through Language Acquisition at sala@fldoe.org.

Career and Technical Student Organization (CTSO)

Florida Future Business Leaders of America (FBLA) and Florida Business Professionals of America (BPA) are the co-curricular career and technical student organizations providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities as identified on the secondary student's Individual Educational Plan (IEP) or 504 plan or postsecondary student's accommodations' plan to meet individual needs and ensure equal access. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

In addition to accommodations, some secondary students with disabilities (students with an IEP served in Exceptional Student Education (ESE)) will need modifications to meet their needs. Modifications change the outcomes or what the student is expected to learn, e.g., modifying the curriculum of a secondary career and technical education course. Note: postsecondary curriculum and regulated secondary programs cannot be modified.