Florida Department of Education
Curriculum Framework

Course Title: **Coding Fundamentals**
Course Type: **Orientation/Exploratory**
Career Cluster: **Information Technology**

Course Number	9009200
CIP Number	0511020109
Grade Level	6-8
Course Length	Semester/Year
Teacher Certification	Refer to the **Course Structure** section.
CTSO	FBLA, TSA, 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 assist Information Technology students in making informed decisions regarding their future academic and occupational goals and to provide information regarding careers in the career cluster. The content includes but is not limited to foundational knowledge and skills related to computer coding and software development. 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.

This course provides foundational knowledge toward SOC codes 15-1132 Software Developers, Applications and 15-1131 Computer Programmers.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Course Structure

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

The following table illustrates the course structure:

9009200	Coding Fundamentals	BUS ED 1@2 COMPU SCI 6 INFO TECH 7G WEB DEV 7G COMP PROG 7G	Semester/Year

Standards:

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

1.0   Demonstrate proficiency using specialized computer coding software.
2.0   Develop an awareness of programming languages.
3.0   Demonstrate proficiency using common software applications.
4.0   Demonstrate knowledge, skill, and application of information systems to accomplish job objectives and enhance workplace performance.
5.0   Demonstrate comprehension and communication.
6.0   Demonstrate knowledge of different operating systems.
7.0   Demonstrate proficiency in basic programming.

Florida Department of Education
Student Performance Standards

Course Title: **Coding Fundamentals**
Course Number: **9009200**
Course Length: **Year**

CTE Standards and Benchmarks	
1.0	Demonstrate proficiency using specialized computer coding software. The student will be able to:
1.1	Use specialized computer coding software to solve problems.
1.2	Demonstrate proficiency using specialized computer software (e.g., Swift, Python).
2.0	Develop an awareness of programming languages. The student will be able to:
2.1	Identify programming language design approaches.
2.2	Explain the components of programming languages.
2.3	Examine connections between elements of mathematics and computer science including binary numbers, logic, sets, and functions.
3.0	Demonstrate proficiency of using common software applications. The student will be able to:
3.1	Compare and contrast the appropriate use of various software applications.
3.2	Demonstrate proficiency in the use of various software applications.
3.3	Explain why different file types exist (e.g., formats for word processing, images, music, and three-dimensional drawings).
3.4	Identify the kinds of content associated with different file types.
4.0	Demonstrate knowledge, skill, and application of information systems to accomplish job objectives and enhance workplace performance. The student will be able to:
4.1	Develop keyboarding skills to enter and manipulate text and data.
4.2	Describe and use current and emerging computer technology and software to perform personal and business related tasks.
4.3	Perform a variety of operations such as sorting, filtering, and searching in a database to organize and display information in a variety of ways such as number formats (e.g., scientific notation, percentages, and exponents) charts, tables and graphs.
5.0	Demonstrate comprehension and communication. The student will be able to:
5.1	Use listening, speaking, telecommunication and nonverbal skills and strategies to communicate effectively.
5.2	Organize ideas and communicate oral and written messages.
5.3	Collaborate with individuals and teams to complete tasks and solve information technology problems.
5.4	Demonstrate an awareness of project management concepts and tools.
5.5	Demonstrate an ability to communicate appropriately through various online tools.
5.6	Recognize that more than one algorithm can solve a given problem.
5.7	Create a program that implements an algorithm to achieve a given goal, individually and collaboratively.
6.0	Demonstrate knowledge of different operating systems. The student will be able to:
6.1	Compare and contrast various operating systems used in a computer and mobile devices (i.e., Windows, OS (Apple), UNIX, Android, iOS).

	6.2	Demonstrate proficiency in using gadgets, icons, and task bars and other pre-loaded operating system programs (e.g., calculator, text editor, clock, volume controls, adding icons and shortcuts to task bar and shortcut menus).
	6.3	Use iterative development and debugging to explore the problem domain.
7.0		Demonstrate proficiency in basic programming. The student will be able to:
	7.1	Describe the structure of a simple program, and explain why sequencing is important.
	7.2	Define the term "algorithm," and explain how it relates to problem-solving.
	7.3	Describe iterative programming structures (e.g., while, do/while) and how they are used in programming.
	7.4	Describe selection programming structures (e.g., if/then, else) and explain the logic used for if statements.
	7.5	Explain the types and use of variables in programming.
	7.6	Write a simple program in pseudo-code that used structured programming to solve a problem.
	7.7	Troubleshoot and debug errors in code.
	7.8	Create, modify, and use a database (e.g., define field formats, adding new records, manipulate data) to analyze data and propose solutions for a task/problem, individually and collaboratively.

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), Florida Technology Student Association (TSA) 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.