Information Technology Career Cluster
Introduction to Software Technology
Course Number 11.44600

Course Description: Introduction to Software Technology is the foundational course for Cloud Computing, Computer Science, Game Design, Internet of Things, Programming, Web and Digital Design, and Web Development pathways. This course is designed for high school students to understand, communicate, and adapt to a digital world as it impacts their personal life, society, and the business world. Exposure to foundational knowledge in programming languages, software development, app creation, and user interfacing applications are all taught in a computer lab with hands-on activities and project-focused tasks.

Students will not only understand the concepts but apply their knowledge to situations and defend their actions, decisions, and/or choices through the knowledge and skills acquired in this course. Employability skills are integrated into activities, tasks, and projects throughout the course standards to demonstrate the skills required by business and industry. Competencies in the co-curricular student organizations are integral components of both the employability skills standards and content standards for this course. Various forms of technologies will be highlighted to expose students to the emerging technologies impacting the digital world. Professional communication skills and practices, problem-solving, ethical and legal issues, and the impact of effective presentation skills are taught in this course as a foundational knowledge to prepare students to be college and career ready. The knowledge and skills taught in this course build upon each other to form a comprehensive introduction to the digital world.

Introduction to Software Technology is a course that is appropriate for all high school students. The pre-requisite for this course is advisor approval.

Course Standard 1

IT-IST-1
Demonstrate employability skills required by business and industry.

The following elements should be integrated throughout the content of this course.

1.1 Communicate effectively through writing, speaking, listening, reading, and interpersonal abilities.

Person-to-Person Etiquette	Telephone and Email Etiquette	Communicating at Work	Listening
Interacting with Your Boss	Telephone Conversations	Improving Communication Skills	Reasons, Benefits, and Barriers
Interacting with Subordinates	Barriers to Phone conversations	Effective Oral Communication	Listening Strategies
Interacting with Co-workers	Making and Returning Calls	Effective Written Communication	Ways We Filter What We Hear
		Effective Nonverbal Skills	Developing a Listening Attitude
		Effective Word Use	Show You Are Listening
		Giving and Receiving Feedback	Asking Questions
			Obtaining Feedback
			Getting Others to Listen

Nonverbal Communication	Written Communication	Speaking	Applications and Effective Résumés
Communicating Nonverbally	Writing Documents	Using Language Carefully	Completing a Job Application
Reading Body Language and mixed Messages		One-on-One Conversations	Writing a Cover Letter
Matching Verbal and Nonverbal communication		Small Group Communication	Things to Include in a Résumé
Improving Nonverbal Indicators		Large Group Communication	Terms to Use in a Résumé
Nonverbal Feedback		Making Speeches	Organizing Your Résumé
Showing Confidence Nonverbally		Answering Questions	Writing an Electronic Résumé
Showing Assertiveness		Visual and Media Aids	
		Errors in Presentation	

1.2 Demonstrate creativity by asking challenging questions and applying innovative procedures and methods.

Teamwork and Problem Solving	Meeting Etiquette
Thinking Creatively	Preparation and Participation in Meetings
Taking Risks	Conducting Two-Person or Large Group Meetings
Building Team Communication	Inviting and Introducing Speakers
	Preparing Visual Aids

1.3 Exhibit critical thinking and problem-solving skills to locate, analyze and apply information in career planning and employment situations.

Problem Solving	Customer Service	The Application Process	Interviewing Skills	Finding the Right Job
Transferable Job Skills	Gaining Trust and Interacting with Customers	Providing Information, Accuracy and Double Checking	Preparing for an Interview	Locating Jobs and Networking
Becoming a Problem Solver	Learning and Giving Customers What They Want	Online Application Process	Questions to Ask in an Interview	Job Shopping Online
Identifying a Problem	Keeping Customers Coming Back	Following Up After Submitting an Application	Things to Include in a Career Portfolio	Job Search Websites
Becoming a Critical Thinker	Seeing the Customer's Point	Effective Résumés:	Traits Employers are Seeking	Staying Motivated to Search
	Selling Yourself and the Company	Matching Your Talents to a Job	Considerations Before Taking a Job	
		When a Résumé Should be Used		

1.4 Model work readiness traits required for success in the workplace including integrity, honesty, accountability, punctuality, time management, and respect for diversity.

Workplace Ethics	Personal Characteristics	Employer Expectations	Business Etiquette	Communicating at Work
Demonstrating Good Work Ethic	Demonstrating a Good Attitude	Behaviors Employers Expect	Language and Behavior	Handling Anger
Behaving Appropriately	Gaining and Showing Respect	Objectionable Behaviors	Keeping Information Confidential	Dealing with Difficult Coworkers

Maintaining Honesty	Demonstrating Responsibility	Establishing Credibility	Avoiding Gossip	Dealing with a Difficult Boss
Playing Fair	Showing Dependability	Demonstrating Your Skills	Appropriate Work Email	Dealing with Difficult Customers
Using Ethical Language	Being Courteous	Building Work Relationships	Cell Phone Etiquette	Dealing with Conflict
Showing Responsibility	Gaining Coworkers' Trust		Appropriate Work Texting	
Reducing Harassment	Persevering		Understanding Copyright	
Respecting Diversity	Handling Criticism		Social Networking	
Making Truthfulness a Habit	Showing Professionalism			

1.5 Apply the appropriate skill sets to be productive in a changing, technological, diverse workplace to be able to work independently and apply teamwork skills.

Expected Work Traits	Teamwork	Time Management
Demonstrating Responsibility	Teamwork Skills	Managing Time
Dealing with Information Overload	Reasons Companies Use Teams	Putting First Things First
Transferable Job Skills	Decisions Teams Make	Juggling Many Priorities
Managing Change	Team Responsibilities	Overcoming Procrastination
Adopting a New Technology	Problems That Affect Teams	Organizing Workspace and Tasks
Use Technology Ethically & Efficiently	Expressing Yourself on a Team	Staying Organized
Interact Appropriately in a Digital World	Giving and Receiving Constructive Criticism	Finding More Time
		Managing Projects
		Prioritizing Personal and Work Life

1.6 Present a professional image through appearance, behavior, and language.

On-the-Job Etiquette	Person-to-Person Etiquette	Communication Etiquette	Presenting Yourself
Using Professional Manners	Meeting Business Acquaintances	Creating a Good Impression	Looking Professional
Introducing People	Meeting People for the First Time	Keeping Phone Calls Professional	Dressing for Success
Appropriate Dress	Showing Politeness	Proper Use of Work Email	Showing a Professional Attitude
Behavior at Conventions		Proper Use of Cell Phone	Using Good Posture
Working in a Cubicle		Proper Use in Texting	Presenting Yourself to Associates
			Accepting Criticism
			Demonstrating Leadership

Course Standard 2

IT-IST-2

Establish a personal online career portfolio and begin uploading relevant artifacts.

2.1 Compare a variety of secure online repositories and select the best one for specific career goals, such as Github for education, Dropbox, Jimdo, Uxfol.io, Portfoliobox and many others.

2.2 Establish an account for long-term use to upload professional artifacts over the course of the career pathway.
2.3 Upload a professional, true, and accurate résumé and cover letter seeking employment for a position representative of current skills and knowledge.
2.4 Upload additional standard job search items, such as digital badges and certificates earned for industry-recognized credentials.
2.5 Identify and upload industry-appropriate artifacts reflective of mastered skills throughout this course. Write and include a reflective entry for each artifact discussing steps taken, problems encountered and how they were overcome, and other pertinent information about the learning.
2.6 Organize the portfolio in a manner that makes documents and artifacts easy to locate and access for review.

Course Standard 3

IT-IST-3

Explore, research, and present findings on positions and career paths in technology and the impact of technology on chosen career area.

3.1 Develop technical reading and writing skills to follow instructions.
3.2 Use collaborative tools to communicate with team members, such as online meeting platforms, group messaging, and shared online documents and files.
3.3 Research specific IT careers, including post-secondary continuing education options, IT credentials, required job skills, potential salaries in Georgia, and work environment. Upload to online career portfolio.

Course Standard 4

IT-IST-4

Demonstrate effective professional communication skills (oral, written, and digital) and practices that enable positive relationships with all audiences of a business.

4.1 Differentiate between the different audiences of a business, including users, clients, customers, contractors, vendors, and others.
4.2 Explain the impact of emerging technologies on a business and how it affects the bottom line.
4.3 Apply strategies for identifying routine software problems current to everyday life.
a. Compose an appropriate report outlining procedures to correct an identified software problem. Upload to online career portfolio.
4.4 Demonstrate ability to assist all audiences in a professional manner.
a. Actively listen to your audience to determine individual needs, such as specifications for a design, breaking down the specifications, and communicating to non-technical individuals.
b. Ensure that your assistance promotes the best interests of the company.
4.5 Identify effective database strategies and create a database to maintain a customer list. Upload to online career portfolio.
4.6 Create a communication document utilizing advanced word processing, spreadsheet, presentation, electronic mail, and database script and app tools for business.

Course Standard 5

IT-IST-5

Identify, describe, evaluate, and use appropriate technology for given situations.

5.1 Demonstrate understanding of set up of a basic computer workstation.

5.2 Identify input and output devices and ports, including keyboards, monitors, printers, touch screens, mice, peripheral connectors (e.g., USB, Lightning, HDMI, and emerging technologies), microcontrollers and sensors (e.g., GPS, temperature, accelerometer).
5.3 Describe and explore current and emerging software, including operating systems, application software, and applications for software development.
5.4 Explain the function and purpose of software tools, text editors, Integrated Development Environments (IDEs), and software development toolchains.

Course Standard 6

IT-IST-6
Understand, communicate, and adapt to a digital world.

6.1 Develop a working IT vocabulary specific to software and programming.
6.2 Describe trends in emerging, evolving, and future computer technologies and their influence on IT practices, such as mobile technology, cloud computing, and microcontrollers.
6.3 Recognize online risks and dangers in order to take appropriate actions to protect the business and self while using digital tools and resources.
6.4 Define and demonstrate folder and file management and the importance of content-management systems.
6.5 Identify and explain how to protect Personally Identifiable Information (PII) in a digital world (Refer to FERPA guidelines).

Course Standard 7

IT-IST-7
Use computational thinking procedures to analyze and solve problems.

7.1 Explain the software development process to solve problems.
7.2 Explain the differences between various software development models such as the iterative and incremental model, scrum, and waterfall.
7.3 Explore commonly used documentation tools for design specifications, such as flowcharts, pseudocode, visual and textual storyboards.
7.4 Create a table showing the most prevalent programming languages currently being used and determine industry tasks where each would be best utilized. Upload to online career portfolio.

Course Standard 8

IT-IST-8
Create and organize webpages through the use of a variety of web programming design tools.

8.1 Understand and apply design principles to create professional appearing and functioning web pages.
8.2 Understand elements of web design, including HTML5, CSS3, responsive design, site usability and accessibility, relation of site to business, and story the site reveals about the business.
8.3 Describe how HTML5 and CSS3 are living web standards.
8.4 Understand the Document Object Model (DOM) used in web page organization and in the creation of dynamic web pages.
8.5 Design simple and dynamic webpages incorporating HTML5 elements (e.g., text, audio, video, and canvas elements such as SVG and other graphics), navigation, linking, forms and client-side scripting. Upload to online career portfolio.

8.6 Explain site accessibility in relation to standards, rules and laws including Web Accessibility Initiative (WAI) and Web Content Accessibility Guides (WCAG).
8.7 Explain the impact of mobile sites on the development of business.
8.8 Explore the trends and emerging issues for websites.

Course Standard 9

IT-IST-9
Identify and explain the building blocks, principles, and ways to access code within programming languages used today.

9.1 Explain and apply the procedures used in current programming languages to access code libraries, scripts, and related coding principles.
9.2 Describe a variety of programming languages used to solve problems.
9.3 Explain how sequence, selection, and iteration are building blocks of algorithms.
9.4 Explain how procedural abstraction is implemented to reuse code.
9.5 Demonstrate the principles of readability and self-documenting code.
a. Use an appropriate naming convention in the creation of variables, functions and/or procedures.
b. Use comments to assist others in understanding programs, algorithms, and functions and/or procedures.

Course Standard 10

IT-IST-10
Design, develop, test, and implement programs using high-level programming languages.

10.1 Use various debugging and testing methods to ensure program correctness.
10.2 Explore text-editors and Integrated Development Environments (IDEs) in the use of software development for different software and hardware platforms.
10.3 Demonstrate the use of pair-programming in the development of new programs and applications.
10.4 Demonstrate the use of content-management systems to track changes and allow for multiple people to create, edit and modify source code files.
10.5 Create and access libraries and Application Programming Interfaces (APIs) in the development of programs or applications. Upload to online career portfolio.
10.6 Understand how data from an external source such as a file, database, or stream can be input, manipulated, and output in programs.

Course Standard 11

IT-IST-11
Describe, analyze, develop, and follow policies for managing ethical and legal issues in the business world and in a technology-based society.

11.1 Demonstrate positive cyber citizenry by applying industry-accepted ethical practices and behaviors.
11.2 Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.
11.3 Exercise digital citizenship as a lifelong learner.
11.4 Debate laws and regulations that impact the development and use of software.
11.5 Describe the various copyright licenses used in the creation and distribution of software.
11.6 Describe personal and legal consequences of inappropriate use of resources and online content, including but not limited to plagiarism, piracy, illegal downloading, copyright infringement, licensing infringement, and inappropriate use of software, hardware, and mobile devices.

Course Standard 12

IT-IST-12

Explore how related student organizations are integral parts of career and technology education courses through leadership development, school and community service projects, entrepreneurship development, and competitive events.

12.1 Explain the goals, mission, and objectives of Future Business Leaders of America (FBLA) and/or Technology Student Association (TSA) and/or SkillsUSA.

12.2 Explore the impact and opportunities a student organization (FBLA, TSA, SkillsUSA) can develop to bring business and education together in a positive working relationship through innovative leadership and career development programs.

12.3 Explore the local, state, and national opportunities available to students through participation in related student organizations (FBLA, TSA, SkillsUSA) including but not limited to conferences, competitions, community service, philanthropy, and other student organization activities.

12.4 Explain how participation in career and technology education student organizations can promote lifelong responsibility for community service and professional development.

12.5 Explore the competitive events related to the content of this course and the required competencies, skills, and knowledge for each related event for individual, team, and chapter competitions.