

## Information Technology Career Cluster Introduction to Hardware Technology Course Number 11.44800

**Course Description:** Introduction to Hardware Technology is the foundational course for Information Support & Services, Networking, and Cybersecurity pathways. This course is designed for high school students to understand, communicate, and adapt to a digital world as it impacts their personal lives, society, and the business world. Exposure to foundational knowledge in hardware, IT support, networks, and cybersecurity 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/choices through the knowledge and skills acquired in this course.

Various forms of technologies will be used to expose students to resources, software, and applications of technology maintenance and repair. Professional communication skills and practices, problem-solving, ethical and legal issues, and the impact of effective presentation skills are enhanced in this course to prepare students to be college and career ready. 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.

Introduction to Hardware Technology is the first course in the Networking, Cybersecurity, and Information Support and Services pathways and is appropriate for all high school students. The prerequisite for this course is advisor approval.

### Course Standard 1

#### IT-IHT-1

The following standard is included in all CTAE courses adopted for the Career Cluster/Pathways. Teachers should incorporate the elements of this standard into lesson plans during the course. The topics listed for each element of the standard may be addressed in differentiated instruction matching the content of each course. These elements may also be addressed with specific lessons from a variety of resources. This content is not to be treated as a unit or separate body of knowledge but rather integrated into class activities as applications of the concept.

#### **Standard: 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	Cell Phone and Internet Etiquette	Communicating At Work	Listening
Interacting with Your Boss	Telephone Conversations	Using Blogs	Improving Communication Skills	Reasons, Benefits, and Barriers
Interacting with Subordinates	Barriers to Phone conversations	Using Social Media	Effective Oral Communication	Listening Strategies
Interacting with Co-workers	Making and Returning Calls		Effective Written Communication	Ways We Filter What We Hear
Interacting with Suppliers	Making Cold Calls		Effective Nonverbal Skills	Developing a Listening Attitude
	Handling Conference Calls		Effective Word Use	Show You Are Listening

	Handling Unsolicited Calls		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	Constructive Criticism in Writing	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	Selling Yourself in a Résumé
Nonverbal Feedback		Making Speeches	Terms to Use in a Résumé
Showing Confidence Nonverbally		Involving the Audience	Describing Your Job Strengths
Showing Assertiveness		Answering Questions	Organizing Your Résumé
		Visual and Media Aids	Writing an Electronic Résumé
		Errors in Presentation	Dressing Up Your Résumé

**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
	Facilitating Discussions and Closing
	Preparing Visual Aids
	Virtual Meetings

**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	Participation in Job Fairs
Managing	Selling Yourself and the Company	Matching Your Talents to a Job	Considerations Before Taking a Job	Searching the Classified Ads
	Handling Customer Complaints	When a Résumé Should be Used		Using Employment Agencies
	Strategies for Customer Service			Landing an Internship

				Staying Motivated to Search
--	--	--	--	-----------------------------

**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			
Leaving a Job Ethically				

**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
	Expressing Yourself on a Team	Staying Organized
	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
Business Meal Functions		Proper Use of Cell Phone	Using Good Posture

Behavior at Work Parties		Proper Use in Texting	Presenting Yourself to Associates
Behavior at Conventions			Accepting Criticism
International Etiquette			Demonstrating Leadership
Cross-Cultural Etiquette			
Working in a Cubicle			

## Course Standard 2

### IT-IHT-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-IHT-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 Work in a team to solve problems and share knowledge.
- 3.3 Use collaborative tools to communicate with team members, such as online meeting platforms, group messaging, and shared online documents and files.
- 3.4 Explore the impact of emerging technologies on careers, including non-traditional technology fields and careers in each of the Georgia Career Clusters.
- 3.5 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.
- 3.6 Explore careers in IT focused on customer relationships.

## Course Standard 4

### IT-IHT-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 Recognize the importance of each audience to a business.
  - a. Identify organizations' products and services.

- b. Explain the impact of Information Technology (IT) to a business and how it affects the bottom line.
- c. Communicate how technology can be used to create solutions to business challenges and present to stakeholders in professional business format.
- d. Demonstrate an ability to provide “value-add” partnership between IT and business.
- 4.3 Demonstrate ability to assist all audiences in a professional manner.
  - a. Actively listen to your audience.
  - b. Determine the individual needs of the audience.
  - c. Project a professional business image (e.g., appearance, voice, grammar, word usage, enunciation, nonverbal communication).
  - d. Interact with customers and colleagues in a professional manner (e.g., prompt, friendly, courteous, respectful, helpful, knowledgeable, and understandable).
  - e. Ensure that your assistance promotes the best interests of the company.
- 4.4 Determine the best method to maintain a customer list and communication platform.
- 4.5 Demonstrate understanding of word processing, spreadsheet, presentation, and database software as a communication tool for business.
- 4.6 Develop a working IT vocabulary.

## Course Standard 5

### IT-IHT-5

#### Identify, evaluate, select, and use appropriate technology.

- 5.1 Identify hardware device functions, including peripheral devices, input devices, and portable hardware appropriate for specific tasks and emerging hardware as it impacts the workplace and society.
- 5.2 Demonstrate understanding of how to set up a basic computer workstation, including various computer types, internal components, connectors, monitors, keyboards, mice, printers, computer voltage, and power requirements.
- 5.3 Describe trends in emerging, evolving, and future computer technologies and their influence on IT practices, such as mobile technology, computing tablets, and cloud computing.
- 5.4 Recognize online risks and dangers in order to take appropriate actions to protect the business and self while using digital tools and resources.
- 5.5 Demonstrate ability to access, navigate and use online resources and technologies.
- 5.6 Define and demonstrate folder and file management and the importance of data back-up procedures.
- 5.7 Explore hardware devices outside of the traditional PC/laptop scenario such as wearables, IoT devices, smart devices, and the role that these devices are filling in the connected world.

## Course Standard 6

### IT-IHT-6

#### Explore and explain the basics of Customer Relationship Management (CRM).

- 6.1 Describe trends in emerging, evolving, and future CRM Systems and their influence on IT practices.
- 6.2 Define and demonstrate the basics and importance of asset management.
- 6.3 Understand the different roles of the IT Helpdesk and the requirements of each.
- 6.4 Demonstrate satisfactory customer service skills in a CRM-based environment.

## Course Standard 7

### IT-IHT-7

#### Explore and explain the basic components of computer networks.

- 7.1 Demonstrate understanding of the OSI model and how it relates to network communications.
- 7.2 Describe common network features, such as routing, switching, network security devices, basic topologies, and networking standards.
- 7.3 Illustrate and describe the functions of various types of networks, including wireless.
- 7.4 Explain key issues in data transmission.
- 7.5 Identify factors which affect the range and speed of wireless service.
- 7.6 Explore networking trends and issues affecting business and personal use.

## Course Standard 8

### IT-IHT-8

#### Use computational thinking procedures to analyze, troubleshoot, and solve problems.

- 8.1 Apply strategies for identifying routine hardware and software problems current to everyday life.
- 8.2 Identify compatibility issues and describe operational problems caused by hardware errors.
- 8.3 Explain how technology can be used to solve problems.
- 8.4 Explore commonly used documentation tools for design specifications, such as flowcharts and visual and textual storyboards.
- 8.5 Define and demonstrate understanding of Knowledge-Based articles (KB) and the impact of research-based troubleshooting.
- 8.6 Demonstrate an understanding of Computational Problem Solving as a part of Computational Thinking.

## Course Standard 9

### IT-IHT-9

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

- 9.1 Demonstrate positive cyber citizenry by applying industry accepted ethical practices and behaviors.
- 9.2 Recognize the ethical and legal issues while accessing, creating, and using digital tools and resources in order to make informed decisions.
- 9.3 Exercise digital citizenship as a lifelong learner.
  - a. Promote and model digital etiquette and responsible social technology interactions, permanence of digital footprints, online image and presence, etc.
- 9.4 Understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
- 9.5 Demonstrate an understanding of technology-related problems such as Internet addiction, mobile phone addiction, and always-connected devices.
- 9.6 Describe personal and legal consequences of inappropriate use of resources and online content.
  - a. Plagiarism, piracy, illegal downloading, copy-right infringement, licensing infringement, inappropriate use of software, hardware, and mobile devices.
- 9.7 Identify security issues and trends affecting computers and information privacy.
  - a. Virus, open or free networks, user control methods, file sharing, etc.
- 9.8 Describe the use of computer forensics to prevent and solve information technology crimes and security breaches.

- 9.9 Identify criminal activity in relationship to cybercrime, the Internet, and Internet trafficking.
  - a. Common internet crimes, techniques to identify criminal activity and prevention actions related to cybercrime.
- 9.10 Understand newly emerging technologies like AI and Deepfakes and their impact on ethical and legal issues in business.
- 9.11 Understand and apply ethical behavior when working with intellectual property.
- 9.12 Understand fundamental ethical frameworks such as IT Compliance and laws and precedents from industry affect how IT operates. Differentiate between national, state, local, and industry ethical standards and how they affect the role of IT in an organization.

## Course Standard 10

### IT-IHT-10

#### **Use tools, diagnostic procedures and troubleshooting techniques for personal computer components.**

- 10.1 Recognize and apply the basic aspects of troubleshooting theory, such as power and cable connections, compatibility, and other basic issues.
- 10.2 Recognize the names, purposes, characteristics, and appropriate application of tools used in computer repair.
- 10.3 Identify and apply basic diagnostic procedures and troubleshooting techniques.

## Course Standard 11

### IT-IHT-11

#### **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.**

- 11.1 Explain the goals, mission, and objectives of Future Business Leaders of America (FBLA) and/or Technology Student Association (TSA) and/or SkillsUSA.
- 11.2 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.
- 11.3 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.
- 11.4 Explain how participation in career and technology education student organizations can promote lifelong responsibility for community service and professional development.
- 11.5 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.