Computer Technology 1

Exam Information

Exam number
250

Items
50

Points
40

Prerequisites
25 WPM

Recommended course length
One semester

National Career Cluster
Business Management & Administration

Information Technology

Performance standards
Included (Optional)

Certificate available
Yes

Description

The Computer Technology 1 industry certification exam assesses foundational concepts associated with key application software, basic computing fundamentals, and ethics and appropriate behavior while using technology as a tool in the classroom and in life. The exam aligns with national and international standards to measure skills across multiple levels.

Exam Blueprint

Standard	Percentage of exam
1. Technology operations & concepts	25%
2. Productivity applications	35%
3. Communication networks, internet, & digital citizenship	23%
4. Electronic communication & collaboration	10%
5. Course integration	7%

Standard 1

Students will be introduced to and be able to demonstrate a sound understanding of computer technology: what types of technology exist, how types of technology function, what component parts work with specific technologies.

Objective 1 Demonstrate understanding of computer hardware, peripherals, and troubleshooting.

1. Explore various computers available in current technology.
2. Identify and understand components and peripherals, including input-output devices: cameras, printers, scanners, game-controllers, etc.
3. Explore and demonstrate knowledge of how to maintain computer equipment and solve common hardware problems.

Objective 2 Understand, evaluate, and use computer software.

1. Use software tools for creating, finding, organizing, and communicating information.
2. Popular software: word processing, spreadsheets, presentation software, databases, graphic and multimedia programs, etc.
3. Transfer knowledge of how software and hardware work together to perform computing tasks (Information Processing Cycle: Input, Output, Processing, Storage, Communication)
4. Understand software types and be able to access updates.

Objective 3 Explore and demonstrate understanding of managing operating systems.

1. Select and/or use the following effectively and productively: windows, folders, files and shortcuts; install, uninstall and run various applications; solve common problems.
2. Critically discuss and select operating systems and capabilities.
3. Use an operating system to manipulate a computer's desktop, files, and disks.
4. Identify how to change system settings, install, and remove software. Describe the different roles and rights of users on a computer.
5. Identify the different purposes and power states of an operating system.
6. Manage (create, delete, move, duplicate, etc.) computer files.
7. Understand directories, file extensions, and associations.

Standard 1 Performance Evaluation included below (Optional)

Standard 2

Students will understand and effectively use the common application functions with word processing, spreadsheets, and presentation software and routinely interact, collaborate, and publish with peers/online communities using these tools and functions.

Objective 1 Understand and integrate common application functions.

1. Be able to start and exit an application, identify, and modify interface elements.
2. Assess and use sources of online help.
3. Create new blank files and files from templates.
4. Learn and perform common editing, formatting, and personalization functions.
5. Learn and perform common printing/outputting functions.
6. Search effectively in a data file.

7. Change views within a data file.
8. Use and manipulate multimedia files in a file (e.g. rotate, crop, resize, insert, and delete).

Objective 2 Identify the major components of microcomputers in the following categories and determine how each contributes to a computer's performance:

1. Be able to effectively create and format text and documents (Use automatic formatting tools).
2. Be able to use word-processing tools to automate processes: document review, security, collaboration.
3. Use and modify tables and different lists.
4. Use and modify page layout options (e.g. numbering, columns, margins, and alignment of text in paragraphs and tables, tabs and rulers, and orientation).

Objective 3 Effectively use and understand spreadsheet features for application in simulated and real-world situations.

1. Modify, organize and manage worksheet data, structure and formatting (e.g. budgets, statistics, and inventory).
2. Modify cells, columns, and rows (e.g. insert, delete, adjust the width/height, change alignment, locate, merge and unmerge cells).
3. Sort, calculate and manipulate data using formulas and functions and create/build simple, effective charts.
4. Apply knowledge of spreadsheets to create and modify charts and graphs.

Objective 4 Effectively use and understand presentation software.

1. Insert and modify text, tables, multimedia, charts, and shapes on a slide.
2. Add, remove, and modify the order of slides.
3. Add and modify animations and transitions.
4. Understand the changing history of presentation software and its place in the modern workplace and academic setting.
5. Design, manage, modify and present presentations for a variety of audiences and purposes.

Objective 5 Understand basic database interactions.

1. Create and run basic reports.
2. Use and modify a basic query.
3. Add, delete, and modify data in a database.

Standard 2 Performance Evaluation included below (Optional)

Standard 3

Students will understand and be able to effectively use and navigate networks and the internet.

Objective 1 Interact with and be a part of using computers.

1. Use computers as powerful tools for finding, sharing, and storing information around the globe.
2. Explore the risks of computing and study the negative impacts on society.

3. Advocate and practice safe, legal, and responsible use of information and technology
4. Identify the differences between the Internet, World Wide Web, and browsers.
5. Classify domains, hyperlinks, homepages, favorites/bookmarks, plugins, tabs, browser history, and downloads/uploads.

Objective 2 Identify network fundamentals.

1. Understand and evaluate different networks and how they transmit different types of data.
2. Understand and identify the roles of clients and servers in a network.
3. Understand the fundamental principles of security in regards to networks.
4. Demonstrate an understanding of network speeds, wireless communication, firewalls, and gateways.
5. Define PSNs, DNSs, IP addresses, LANs, WANs, and VPNs.
6. Solve connectivity and common network problems.

Objective 3 Demonstrate skills for digital citizenship.

1. Categorize the difference between personal and professional communication.
2. Define and explain spamming, flaming, cyber-bullying, libel, and slander.
3. Define and describe censorship, filtering, and intellectual property, and piracy, copyright, licensing, and creative commons.

Standard 4

Students will use multiple processes of communication. They will understand what appropriate means of communication is most beneficial for a given task's purpose and audience.

Objective 1 Interact with and identify different types of electronic communication/collaboration: email, cell phones, blogs, teleconferencing, social networks, email and other electronic devices/tools.

1. Demonstrate responsibility in choosing the appropriate means of communication for a given situation and audience.
2. Understand common problems and challenges with electronic communication. (e.g., delivery failure, junk mail, fraud, viruses, etc.).

Objective 2 Search effectively.

1. Use effective search terms in a search engine to get specific information from reputable sources.
2. Evaluate information from forums, knowledge bases, and articles.
3. Determine the validity of information.
4. Use advanced features of a search engine to filter information by file, media, category, and size.

Objective 3 (Computer and the Use of the Internet within Society) Students recognize ways by which human lives interact with and utilize computers.

1. Analyze and discuss various societies' uses of computing (e.g., work, school, government, home and social interaction).

2. Identify the risks of using computer hardware and software safely, ethically and legally.
3. Explain how to protect identity online (e.g. personal firewalls, cookies, virus and spyware protection, updating programs, and operating systems).
4. Investigate the purpose of ergonomics with monitors, computer mice, chair settings, lighting, and posture.

Standard 4 Performance Evaluation included below (Optional)

Standard 5

Students will use their document processing, spreadsheet, and/or electronic presentation skills to complete a cross curricular project during the semester (or trimester, etc.,) in which they are enrolled in the computer technology course.

Objective 1 Students will use any or all the following in a project to be presented to the Computer Technology teacher and a cross-curricular teacher: document- processing, spreadsheet, electronic presentation.

Standard 5 Performance Evaluation included below (Optional)

Computer Technology 1

Performance assessments may be completed and evaluated at any time during the course. The following performance skills are to be used in connection with the associated standards and exam. To pass the performance standard the student must attain a performance standard average of 8 or higher on the rating scale. Students may be encouraged to repeat the objectives until they average 8 or higher.

Student's Name: _____

Class: _____

Performance standards rating scale

0	Limited skills	2	→	4	Moderate skills	6	→	8	High skills	10

Standard 1 – Technology Operations and Concepts Score:

- Demonstrate a sound understanding of computer technology
    - Understand what types of technology exist, how types of technology function, what component parts work with specific technologies
    - Demonstrate understanding of computer hardware, peripherals and troubleshooting
    - Understand, evaluate, and use computer software
    - Explore and demonstrate understanding of managing operating systems

Standard 2 – Productivity Applications Score:

- Create new blank files and files from templates
- In word processing software, create, use and modify tables and different lists
- Apply knowledge of spreadsheets to create and modify charts and graphs
- Apply knowledge of presentations to create and modify a presentation

Standard 4 – Electronic Communication and Collaboration Score:

- Use effective search terms in a search engine to get specific information from reputable sources

Standard 5 – Course Integration Score:

- Students will use any or all of the following in a project to be presented to the Computer Technology 1 teacher and a cross-curricular teacher:
    - Document processing
    - Spreadsheet
    - Electronic presentation

Performance standard average score:

Evaluator Name: _____

Evaluator Title: _____

Evaluator Signature: _____

Date: _____