

Information Technology Fundamentals Course Syllabus

Course Number: 10001G1000

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Course Description

IT Fundamentals introduces the knowledge base and technical skills for information technology careers. The course presents the basics of computer technology and the functions of information systems. Topics include applications and software, infrastructure, database fundamentals, security, and software development. Emphasis is placed on maintaining a safe working environment and on building technology skills needed for working in the information technology environment.

Goals

The goals of Technology Support and Services is to provide students opportunities to reinforce core academic content while learning the necessary technology skills to be successful in their chosen careers.

Pre-requisites: None

Fees: There is a required fee of \$40 per year (\$20 per semester)

Foundational Standards

1. Incorporate safety procedures in handling, operating, and maintaining tools and machinery; handling materials; utilizing personal protective equipment; maintaining a safe work area; and handling hazardous materials and forces.
2. Demonstrate effective workplace and employability skills, including communication, awareness of diversity, positive work ethic, problem-solving, time management, and teamwork.
3. Explore the range of careers available in the field and investigate their educational requirements, and demonstrate job-seeking skills including resume-writing and interviewing.
4. Advocate and practice safe, legal, responsible, and ethical use of information and technology tools specific to the industry pathway.
5. Participate in a Career and Technical Student Organization (CTSO) to increase knowledge and skills and to enhance leadership and teamwork.
6. Use technology to collaborate with peers and/or experts to create digital artifacts that can be published online for a target audience.
7. Formulate new ideas, solve problems, or create products through the design and engineering process by utilizing testing, prototypes, and user feedback.

Content Standards

1. Explain the purposes of operating systems, including interfaces between applications and hardware, process management and scheduling, access control protection, and management of applications, memory, disks, and devices.

2. Describe different types of operating systems and explain the advantages and disadvantages of each.

Examples: mobile vs. computer, proprietary, Linux, Microsoft Operating System

3. Compare and contrast components of operating systems, including file systems, features, file management, services, processes, drivers, utilities, and interfaces.

4. Select and use productivity software for real-world applications.

Examples: office tools, open source tools

5. Describe various types of applications and delivery models.

Examples: locally installed, local network hosted, cloud hosted, one-tier, two-tier, three-tier, n-tier, low-code or no-code programming, WYSIWYG web development

6. Configure and manage web browsers, including caching, clearing a cache, deactivating client-side scripting, utilizing browser add-ons and extensions, private browsing, proxy settings, certificates, popup blockers, script blockers, and compatible browsers for various applications.

7. Compare and contrast common data storage units of measurement used for computing.

Examples: bytes, bits, throughput rate Infrastructure

8. Compare the purposes of common devices used for networking and peripheral input and output interfaces.

Examples: scanners, digital cameras, webcams, routers, switches

a. Distinguish between input and output devices, including monitor, keyboard, mouse, and printer.

Example: Create a table to categorize devices.

9. Set up and install common peripheral devices to a laptop or desktop PC.

Examples: external storage, printers, cameras

10. Explain the purposes and functions of common internal computing components.

Examples: motherboard, hard drive, RAM, expansion card, CPU

11. Compare and contrast the characteristics, advantages, and disadvantages of common Internet service infrastructure, including fiber optic, cable, wireless, and DSL.

12. Compare and contrast cloud computing and traditional computing, including how data elements are organized and where data is stored.

a. Explain why businesses regard critical data and information as assets.

Examples: data-driven decisions, crown jewels analysis, trade secrets/proprietary data, patent information

b. Explain the importance of promoting and protecting the intellectual property of a business.

In addition, this course will help prepare the student to pursue the IT Fundamentals + and A + CompTIA certification exams.

Embedded Numeracy Anchor Assignment

This course contains mathematical problems for some units. Students will have to add the volume of hard drive space from ones, tens, hundreds, thousands, or millions. They will also have to know the speed of a computer and convert in Megahertz and Gigahertz.

Embedded Literacy Anchor Assignment

Students will read and comprehend complex informational texts used to explain hardware, software, processes, and basic computer components. Students will be shown an example of simulation labs and will be tasks to complete each task in order.

Classroom Expectations

1. Be respectful of the teacher, each other, and all classroom property
2. Participate in classroom discussion and group work
3. Use appropriate language at all times
4. Be in class on time and seated
5. Keep your chair at your laptop unless you have permission to move

Daily Class Work

Students will review previous class work and get more in depth to the information technology cluster.

Assessment Procedures: Final grades will be comprised of daily activities, quizzes, and tests

Minor (40%): Daily activities and quizzes

Major (60%): Units tests and Simulators Labs

Grading Policy

A (90-100), B (80-89), C (70-79), D (60-69), and F (below 60).

Student Credentialing

Students will have the opportunity to take the TestOut IT Fundamental test for credential. If any student does excellent on this test, we will provide them the opportunity to take the CompTIA A+ test at no cost to the student.

CTSO: SkillsUSA empowers its members to become world-class workers, leaders and responsible American citizens. SkillsUSA improves the quality of our nation's future skilled workforce through the development of Framework skills that include personal, workplace and technical skills grounded in academics. Alabama SkillsUSA is committed to producing a generation of strong workers and exceptional leaders who will take America's workforce into a new frontier of triumph and prosperity.

** The syllabus serves as a guide for both the teacher and student; however, during the term it may become necessary to make additions, deletions, or substitutions. For any necessary changes, adequate notice will be provided to the students.*