

# Introduction to Information Technology

Career Cluster	Information Technology
Course Code	10003
Prerequisite(s)	Recommended that a student has taken from the Foundation Courses Computer Applications.
Credit	.5
Program of Study and Sequence	Intro to Information Technology is recommended as a prerequisite for two career pathways in the Information Technology: 1) Programming; 2) Networking and Hardware.
Student Organization	SkillsUSA
Coordinating Work-Based Learning	Tours, Guest Speakers, Job Shadowing
Industry Certifications	None
Dual Credit or Dual Enrollment	TBD
Teacher Certification	Information Technology Cluster Endorsement; K-12 Educational Technology; K-12 Classroom Technology
Resources	

## Course Description:

Introduction to Information Technology prepares students with knowledge and background of technology careers, programming, and hardware. This course explores new and emerging technologies for both professional and personal use.

## Program of Study Application

Introduction to Information Technology is recommended as a prerequisite for two pathways: Programming and Networking & Hardware.

**Course Standards****Indicator # IT 1. Understand the need and impact of technology.**

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
One	IT 1.1 Define the relationship between electronic devices and computers Example: <ul style="list-style-type: none"> <li>List electronic devices that you have used in the last two weeks and how those devices synchronize with computer technology</li> </ul>	
One	IT 1.2 Describe the functional areas in which computers assist people. Example: <ul style="list-style-type: none"> <li>Explain how computers can assist people</li> <li>Research artificial intelligence</li> <li>Research the impact of social networking through the Internet</li> <li>Explain how technology impacts our entertainment</li> </ul>	
One	IT 1.3 Describe how technology is impacting community Examples: <ul style="list-style-type: none"> <li>Research how technology connects people</li> <li>List ways in which etiquette plays a role in technology and communication</li> <li>Research flash mobs and how technology assist this activity</li> </ul>	
One	IT 1.4 List physical and mental health dangers associated with computer use Examples: <ul style="list-style-type: none"> <li>Research physical health concerns caused by technology usage</li> <li>Research mental health and addiction caused by technology usage</li> <li>Explain what can be done to avoid health problems</li> </ul>	

**Notes:**

**Indicator # IT 2. Understand computer hardware required to meet specific needs.**

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
One	IT 2.1 Understand how computer information is represented. Examples: <ul style="list-style-type: none"> <li>• Explain how computers represent data</li> <li>• Research the history of binary and machine language</li> <li>• Convert decimal to binary and binary to decimal</li> </ul>	
One	IT 2.2 Identify hardware components and their relationship to computer usage. Examples: <ul style="list-style-type: none"> <li>• Research hardware requirements for five top pieces of software</li> <li>• Identify input, output, storage, and processing devices</li> <li>• List the computing and hardware needs for your future information technology career</li> </ul>	
Two	IT 2.3 Understand different types of memory and storage Examples: <ul style="list-style-type: none"> <li>• Explain differences between volatile and non-volatile memory</li> <li>• Explain differences between magnetic, optical and solid state storage</li> </ul>	
One	IT 2.4 Identify input and output devices to meet the needs of users Examples: <ul style="list-style-type: none"> <li>• Identify input devices and how they connect to the computer</li> <li>• Identify output devices and how they connect to the computer</li> <li>• Explain how input and output devices can help individuals with disabilities</li> <li>• Research new ideas for input and output devices</li> </ul>	

Two	IT 2.5 Understand the decision-making process involved in purchasing computer systems Examples: <ul style="list-style-type: none"><li>• Identify a need the computer might solve.</li><li>• Research minimum requirements for software and usage of the computer</li><li>• Research cost of computers at different computer stores to meet the needs of low, middle, and high end users.</li></ul>	
-----	---	--

**Notes:**

**Indicator # IT 3. Understand software solutions for personal and professional use.**

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
Two	IT 3.1 Explain how software is created, distributed, installed, and maintained. Examples: <ul style="list-style-type: none"> <li>• Explain the difference between system and application software and list examples of each.</li> <li>• List the steps to the software development process</li> <li>• Research different types of programming languages and identify their differences and what they are used for</li> <li>• Discuss software copyright and licensing issues</li> <li>• Explain the impact that Freeware, Open-Source Software, and Alternative Licensing has on software development</li> </ul>	
One	IT 3.2 Describe the functions of system software and operating systems Examples: <ul style="list-style-type: none"> <li>• Explain the purpose for system software</li> <li>• List major operating systems and their features</li> </ul>	
Two	IT 3.3 Describe different types and purposes of productivity software Examples: <ul style="list-style-type: none"> <li>• List popular productivity software and its manufacturer</li> <li>• Identify what software is needed for different careers</li> <li>• Research artificial intelligence software</li> <li>• Explain the Turing Test</li> </ul>	

**Notes:**

**Indicator # IT 4. Understand technology used for the Internet.**

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
One	IT 4.1 Describe how the Internet developed Examples: <ul style="list-style-type: none"> <li>• Research the history of the Internet</li> <li>• List major Internet milestones</li> </ul>	
One	IT 4.2 Explain how hardware, protocols, and software work together to create the Internet Examples: <ul style="list-style-type: none"> <li>• Identify hardware used within the Internet infrastructure</li> <li>• Identify key Internet protocols and how they transport information</li> <li>• Identify the different layers of the open systems interconnection (OSI) model</li> </ul>	
Two	IT 4.3 Explain the underlying structures and technologies used to support the Internet. Examples: <ul style="list-style-type: none"> <li>• Explain how a user connects to the Internet</li> <li>• Identify different Internet connections and how they differ</li> <li>• Explain web basics and how information is created and transmitted</li> </ul>	

**Notes:**

**Indicator # IT 5. Understand computer network and telecommunications technologies.**

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
One	IT 5.1 Understand the fundamentals of data communications Examples: <ul style="list-style-type: none"> <li>• Identify the types of signals and transmission capacities used in telecommunications</li> </ul>	
One	IT 5.2 List the types of media, devices, and software needed for networking services. Examples: <ul style="list-style-type: none"> <li>• Identify types of networking media, their differences, and limitations</li> <li>• Identify hardware required within a network for data transmission</li> <li>• Identify network operating systems and management software</li> <li>• Create common networking media</li> </ul>	
One	IT 5.3 List and describe the popular forms of wireless technologies Examples: <ul style="list-style-type: none"> <li>• Identify types of wireless devices and how they transmit information</li> <li>• Explain how cell phones transmit voice and data</li> <li>• Explain how GPS devices work and assist people</li> <li>• Research the impact radio frequency identification (RFID) has on personal and business applications</li> </ul>	

**Notes:**

**Indicator # IT 6. Understand the needs and uses for digital media.**

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
One	IT 6.1 Understand the uses of digital media. Examples: <ul style="list-style-type: none"><li>• Identify common digital formats</li><li>• Covert digital files from one format to another</li><li>• Explain copyright issues regarding digital media</li></ul>	
Two	IT 6.2 Discuss how interactive media is used to educate and entertain. Examples: <ul style="list-style-type: none"><li>• Explain how interactive media is used in education</li><li>• Explain the impact of simulators on training individuals</li><li>• Research interactive media advances in home entertainment.</li></ul>	

**Notes:**



**Indicator# IT 7. Understand computer crime and information security.**

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
One	IT 7.1 Describe methods of keeping electronic devices secure Examples: <ul style="list-style-type: none"> <li>• Identify types of machine-level security procedures</li> <li>• Research the impact of biometrics authentication, e.g. retinal scanning.</li> </ul>	
Two	IT 7.2 Discuss the threats and defenses for networks Examples: <ul style="list-style-type: none"> <li>• Define multiuser systems and how to protect them</li> <li>• Explain common threats to wireless networks</li> <li>• Explain how and why it is important to secure wireless networks</li> <li>• Research methods on stealing wireless connections</li> </ul>	
Three	IT 7.3 Describe the threats posed by hackers, software, scams and the methods of defending against them Examples: <ul style="list-style-type: none"> <li>• Research famous hackers and the damage they caused</li> <li>• Identify popular methods of attacks</li> <li>• Explain the types of viruses and how they are spread</li> <li>• Identify key frauds, scams, and hoaxes and how to research validity of information</li> </ul>	

**Notes:**

**Indicator # IT 8. Understand technology ethics in a global society.**

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
Two	IT 8.1 Describe the negative and positive impacts of social media Examples: <ul style="list-style-type: none"> <li>• Research laws and censorship issues regarding technology</li> <li>• Explain content-filtering and how it is used</li> <li>• Identity technology issues related to freedom of speech</li> </ul>	
Two	IT 8.2 Explain the ways in which technology is used to invade personal privacy Examples: <ul style="list-style-type: none"> <li>• Research technologies that are considered invasion of personal privacy</li> <li>• Research technologies and the digital footprints left by them</li> <li>• Research how the Patriot Act has impacted invasion of personal privacy devices</li> </ul>	
One	IT 8.3 Identify ethical issues related to digital technology Examples: <ul style="list-style-type: none"> <li>• Explain how ethics play a role in personal, professional, and governmental use of technology</li> <li>• Discuss the socioeconomic digital divide</li> <li>• Discuss accommodations needed to assist individuals with disabilities to access technology</li> </ul>	

**Notes:**

**Indicator # IT 9. Explore careers in information technology.**

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
One	IT 9.1 Identify skills, interests, and abilities related to information technology. Examples: <ul style="list-style-type: none"> <li>• Job shadowing, guest speakers, and online resources</li> </ul>	
Two	IT 9.2 Compare personal interest survey results with information technology occupations Example: <ul style="list-style-type: none"> <li>• Use South Dakota MyLife to research and compare careers</li> </ul>	
Three	IT 9.3 Research labor market information for information technology. Examples: <ul style="list-style-type: none"> <li>• Write a short essay citing demographics, wages and geographical locations</li> </ul>	
Two	IT 9.4 Demonstrate necessary job skills needed for Information and Technology industries Examples: <ul style="list-style-type: none"> <li>• Attendance and punctuality</li> <li>• Positive attitude</li> <li>• Positive work ethic</li> <li>• Use of proper social skills</li> <li>• Display ability to work as part of team and take direction from others</li> </ul>	

**Notes:**

**Indicator # IT 10. Demonstrate knowledge of the software development process.**

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>	
	IT 10.1 - Apply tools for developing software applications Examples: <ul style="list-style-type: none"> <li>• Introduce students to an editor to create a program</li> <li>• Create “Hello World”</li> </ul>		
	IT 10.2 – Demonstrate knowledge of programming structures Examples: <ul style="list-style-type: none"> <li>• Use online resources to create and debug a block program.</li> </ul>		

**Notes:**