Mississippi Department of Education
Office of Curriculum and Instruction

Course Title:	**Introduction to Information Technology**
Grade Level:	**9, 10, 11, 12**
Carnegie Unit:	**1**
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Introduction to Information Technology (110600) Unit 1: Orientation to Information Technology

Competencies and Suggested Objectives
1. Research educational, occupational, and leadership opportunities in information technology. DOK2 a. Review student rules and regulations for the local school. b. Compare and contrast local program policies, procedures, and expectations to industry policies, procedures, and expectations. c. Identify and describe leadership opportunities available from student youth organizations in the school and community. d. Preview the school technology acceptable use policy.
2. Identify, discuss, and apply safety procedures in the computer classroom and lab. DOK2, SF2,SF4 a. Discuss the proper classroom and personal safety procedures to include fire extinguishers, electrical, clothing, jewelry, eye protection, and so forth. b. Care for and use computer hardware correctly. c. Handle DVDs and CDs correctly. d. Identify potential health hazards when working on computer equipment.
3. Publish and communicate with peers, experts, and other audiences using technology. DOK2, ND1 a. Research safety issues related to telecommunications and the Internet Academic Standards, if applicable. b. Develop personal safety guidelines that will be used when using telecommunications and the Internet. c. Describe legal implications related to the computer industry to include software copyright issues, software licensing, and Internet ethics and policies. d. Use browsers, search engines, and e-mail. e. Post information to discussion boards, blogs, wikis, and social media. f. Use an appropriate, supervised chat room to communicate with peers, experts, and other approved audiences. g. Research, create, and present a presentation/project on emerging technologies, practices, trends, and issues associated with information technology.

Unit 2: Technology and Computer Hardware Basics

Competencies and Suggested Objectives
1. Define basic IT terminology related to computer hardware and networking. DOK1, SF1 a. Define terminology related to the Central Processing Unit including the following: single/dual/quad core, Intel/cell/AMD based, GHz vs. MHz, processor cache size, and bus speed. CE5,CE6,CE7 b. Define terminology related to Random Access Memory including the following: DDR, DDR2, DDR3; and DIMMs vs. SODIMMs. CE5,CE6,CE7 c. Define terminology related to hard drives including the following: RPMs; cache size; flash based vs. traditional hard drives; SATA, SCSI, and IDE; internal vs. external; and local vs. network shares ed. CE5,CE6,CE7 d. Define terminology related to networking including the following: i. Wireless networking: 802.11 a/b/g/n, Bluetooth, RF (radio frequency), interference, WAP (wireless access point), SSID, and wireless router. ii. Ethernet technologies: CAT5 connections and cables, home plug (Ethernet over Power), broadband router, DSL and cable modems, standard vs. crossover cables, and auto-negotiating (speed and duplex). iii. Internet iv. Protocols: HTTP vs. HTTPs, FTP, SSL, POP3, SMTP, IMAP, DNS, DHCP, and TCP/IP (IPv4 address vs. IPv6 address). v. Browser features: plug-ins, customization (text sizes, text styles, etc.), anti-phishing features, ActiveX and JAVA, cookies, and Internet cache.
2. Demonstrate the proper use of computing devices. DOK2, SF1 a. Demonstrate the proper use of monitors including adjusting monitor settings. b. Demonstrate the proper use of a desktop. c. Demonstrate the proper use of a server. d. Demonstrate the proper use of portable devices including: laptop, PDA, Smartphone, and netbook.
3. Identify and describe the characteristics and functions of internal and external storage devices. DOK1, SF1 a. Identify and describe CD/CD-RW drives. b. Identify and describe DVD/DVD-RW drives. c. Identify and describe Blu-Ray disk drives. d. Identify and describe USB storage including solid state and magnetic disk technologies. e. Identify and describe multi-card reader and writers. f. Identify and describe hard drives. g. Identify and describe mobile media devices including MP3 players and PDAs.
4. Identify and describe the characteristics (including cables, hardware), and functions of peripheral devices. DOK1, SF1 a. Identify and describe digital cameras. b. Identify and describe Web cameras. c. Identify and describe speakers. d. Identify and describe tuners.

e. Identify and describe microphones.
f. Identify and describe printers and scanners.

5. Identify and describe the characteristics and functions of input devices. DOK1, SF1
   a. Identify and describe keyboards.
   b. Identify and describe a computer's mouse.
   c. Identify and describe tablet touch screens.
   d. Identify and describe numeric keypads.
   e. Identify and describe gamepads.

6. Identify the risks associated with upgrading the following technologies and equipment. DOK1, SF1,SF3,SF4
   a. Identify the risks associated with upgrading operating systems (open source and commercial) including the following: compatibility issues, upgrade issues, and data loss.
   b. Identify the risks associated with upgrading PC speed/storage capability including the following: compatibility issues, upgrade issues, bus differences, and hardware failure.
   c. Identify the risks associated with upgrading applications including minimum requirements and compatibility issues.
   d. Identify the risks associated with upgrading bandwidth including the following: VoIP, streaming, and Web delivered services.
   e. Identify the risks associated with automatic application and operating system updates including the following: risks of automatic updates, risks of not using automatic updates, and risks of not using manufacturer Websites

7. Demonstrate the ability to set up a basic PC workstation. DOK2, SF1,SF3,
   a. Demonstrate the ability to set up various connector types including the following: DVI, VGA, and HDMI; USB and PS2; FireWire; Bluetooth and wireless; serial; network connectors; PCMCIA; ExpressCard; 3.5mm audio jack; and power connectors.
   b. Demonstrate the ability to set up various monitor types to including CRT and LCD.
   c. Demonstrate the ability to set up a computer including the following: desktop, tower, laptop, and custom cases.
   d. Demonstrate the ability to set up various keyboards to include keyboard layout and regionalization.
   e. Demonstrate the ability to set up a mouse including the following: touchpad, optical, and trackball.
   f. Demonstrate the ability to set up various printers including the following: USB, wireless, and networked.
   g. Demonstrate the ability to set up PC voltage and power requirements.
   h. Demonstrate the ability to turn on and use the PC and peripherals

Unit 3: Compatibility Issues

Competencies and Suggested Objectives
1. Identify and describe basic compatibility issues and possible solutions. DOK2, SF1, SF2 a. Discuss compatibility issues involving Processor performance. b. Discuss compatibility issues involving RAM memory. c. Discuss compatibility issues involving USB (1.1, 2.0, 3.0). d. Discuss compatibility issues involving PS/2. e. Discuss compatibility issues involving Ethernet. f. Discuss compatibility issues involving Wireless networks.
2. Explain how common operational problems are often caused by hardware. DOK2, SF1, SF2 a. Discuss what causes a critical error message or crash. b. Explain the causes of a System lockup (freeze). c. Discuss why an application will not start or load. d. Explain the major causes of not being able to logon to a network. e. Discuss the causes of hardware devices not functioning due to Driver/hardware compatibility. f. Explain what causes input devices not to function proper.
3. Demonstrate the ability to minimize risks. DOK2, SF1, SF4 a. Identify ways to minimize risks of data loss by using various means of backup solutions. b. Identify ways to minimize risks of loss of service through use of firewalls, intrusion detections systems, honey pots, and so forth. c. Discuss the ability to minimize risks of damage to equipment by preventing Electro Static Discharge (ESD) and fire hazards.

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2023 Introduction to Information Technology

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The Research and Curriculum Unit (RCU), located in Starkville, as part of Mississippi State University (MSU), was established to foster educational enhancements and innovations. In keeping with the land-grant mission of MSU, the RCU is dedicated to improving the quality of life for Mississippians. The RCU enhances intellectual and professional development of Mississippi students and educators while applying knowledge and educational research to the lives of the people of the state. The RCU works within the contexts of curriculum development and revision, research, assessment, professional development, and industrial training.

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Standards

Some standards and alignment crosswalks are referenced in the appendix. Depending on the curriculum, these crosswalks should identify alignment to some of the standards mentioned below, as well as possible related academic topics as required in the Subject Area Testing Program in Algebra I, Biology I, English II, and U.S. History from 1877, which could be integrated into the content of the units. Mississippi's Introduction to Information Technology curriculum is aligned to the following standards:

National Standards for Business Education
The National Business Education Association (NBEA) has created standards to introduce students to the basics of personal finance, the decision-making techniques needed to be wise consumers, the economic principles of an increasingly global marketplace, and the processes by which businesses operate. In addition, these standards provide a solid educational foundation for students who want to successfully complete college programs in various business disciplines. *NBEA Business Education Library* (2020).
nbea.org

International Society for Technology in Education Standards (ISTE)
Reprinted with permission from *ISTE Standards for Students* (2016). All rights reserved. Permission does not constitute an endorsement by ISTE.
iste.org

College- and Career-Ready Standards
College- and career-readiness standards emphasize critical thinking, teamwork, and problem-solving skills. Students will learn the skills and abilities demanded by the workforce of today and the future. Mississippi adopted Mississippi College- and Career-Readiness Standards (MCCRS) to provide a consistent, clear understanding of what students are expected to learn and so teachers and parents know what they need to do to help them.
mdek12.org/oae/college-and-career-readiness-standards

Framework for 21st Century Learning
In defining 21st-century learning, the Partnership for 21st Century Skills has embraced key themes and skill areas that represent the essential knowledge for the 21st century: global awareness; financial, economic, business, and entrepreneurial literacy; civic literacy; health literacy; environmental literacy; learning and innovation skills; information, media, and technology skills; and life and career skills.
battelleforkids.org/networks/p21/frameworks-resources

Executive Summary

Course Description
The Introduction to Information Technology curriculum is designed to prepare students to be successful in today's diverse business environment. This course introduces students to the information technology field by providing knowledge related to digital citizenship, devices and components, operating systems, applications and software, and career opportunities.

Applied Academic Credit
The latest academic credit information can be found at mdek12.org/ese/approved-course-for-the-secondary-schools.

Teacher Licensure
The latest teacher licensure information can be found at mdek12.org/oel/apply-for-an-educator-license.

Professional Learning
If you have specific questions about the content of any of training sessions provided, please contact the RCU at 662.325.2510.

Course Outline

One 1-Carnegie Unit Course

This curriculum consists of one 1-credit course.

Introduction to Information Technology—Course Code: 110600

Unit	Title	Hours
1	Introduction to Information Technology	10
2	Digital Citizenship, Security, and Risk Management	25
3	Devices and Components	30
4	Operating Systems	30
5	Applications and Software	35
6	Information Technology Careers	10
Total		**140**

Unit 1: Introduction to Information Technology

Competencies and Suggested Objectives
1. Identify uses of technology in the home, school, workplace, and globally diverse society. DOK1 a. Explain how information technology meets human needs and affects the quality of life. b. Identify the impact of information technology on the environment and society—both positive and negative.
2. Describe the impact of technology on worker productivity and teamwork the knowledge and skills needed for success in the workplace. DOK2 a. Explain how information technology has impacted worker productivity and teamwork. b. Describe how information technology affects worker-management relationships (e.g., outsourcing, communications, cloud computing, etc.). c. Identify emerging trends in information technology and predict influences on business, industry, and the global economy.
3. Use technology sources to gather, evaluate, cite, and disseminate information. DOK4
4. Understand the purpose of data and networking infrastructures as it relates to information technology. DOK1

Unit 2: Digital Citizenship, Security, and Risk Management

Competencies and Suggested Objectives
1. Identify respectful, responsible, inclusive, and ethical behaviors in a digital world. DOK1 a. Discuss basic issues related to the responsible use of technology and describe personal or legal consequences of inappropriate use. b. Explore the risks and dangers of sharing personal information in a digital world (e.g., digital footprint, cyberbullying, cyberstalking, identity theft, etc.) and apply internet safety practices.
2. Demonstrate appropriate use of intellectual property. DOK4 a. Compare and contrast various types of license agreements (e.g., open source, creative commons, copyright, etc.).
3. Demonstrate appropriate etiquette when using information technology. DOK4 a. Discuss the process of safely buying and selling online. b. Identify safe practices when using social media. c. Analyze legal and ethical dilemmas within the framework of current laws and legislation (e.g., virus development, hacking, threats, phishing, etc.).
4. Understand the purpose of risk management in information technology. DOK1
5. Design and implement risk management policies and procedures for information technology. DOK4

Unit 3: Devices and Components

Competencies and Suggested Objectives
1. Describe current and emerging devices and components. DOK2 a. Identify the parts of a computer. b. Identify devices appropriate for specific tasks. c. Research different types of assistive devices used to help those with disabilities (e.g., text to speech, voice recognition, immersive reader, etc.).
2. Describe interrelationships between device components (internal and external) and supportive applications. DOK2 a. Identify storage options. b. Compare and contrast various storage devices (e.g., local, removable, remote, cloud, etc.).
3. Use various input technologies to enter and manipulate information appropriately. DOK3 a. Use a variety of input technologies to optimize academic and workplace performance. b. Apply proper ergonomic techniques when using various input technologies.
4. Plan the selection and acquisition of various devices that could be utilized in an information technology classroom. DOK3

Unit 4: Operating Systems

Competencies and Suggested Objectives
1. Identify and evaluate basic operating systems. DOK3 a. Describe various operating systems, platforms, and utilities (e.g., Android, iPhone, Chrome, open source, etc.). b. Differentiate between operating systems and applications. c. Compare and contrast the functions, features, and limitations of different operating systems (e.g., open source, mobile, and proprietary operating systems).
2. Plan the selection and acquisition of devices with various operating systems that could be utilized in an information technology classroom. DOK3

Unit 5: Applications and Software

Competencies and Suggested Objectives
1. Identify and use applications appropriate for specific tasks to improve academic achievement across the curriculum (e.g., word processing software, spreadsheet software, presentation software, etc.). DOK4 a. Produce projects that include a variety of media (e.g., images, text, video, web-based tools, audio, etc.). b. Practice the use of peer classroom training when utilizing various applications and software.
2. Identify and utilize various types of resources for web development. DOK4 a. Demonstrate and apply appropriate design concepts. b. Research and apply accessibility guidelines and laws affecting website design.
3. Investigate cybersecurity software and determine best practices for personal and industry use. DOK3
4. Discuss and explore various database management software systems. DOK2

Unit 6: Information Technology Careers

Competencies and Suggested Objectives
1. Explore career opportunities in information technology. DOK3 a. Identify and discuss the impact of information technology commonly used in careers. b. Examine the education, experience, skills, and personal requirements for careers in information technology. c. Research career opportunities and emerging fields in information technology.

Appendix: National Standards for Business Education

National Standards for Business Education Crosswalk for Introduction to Information Technology							
	Units	**1**	**2**	**3**	**4**	**5**	**6**
Standards							
IT1		X					
IT2		X					
IT3			X				
IT4				X			
IT5					X		
IT6						X	
IT7						X	
IT8						X	
IT9						X	
IT10						X	
IT11						X	
IT12						X	
IT13		X					
IT14				X	X		
IT15			X				
IT16						X	
IT17				X			
IT18							X

Information Technology

NBEA-IT1 – Impact on Society

- Assess the impact of information technology in a diverse global society.

NBEA-IT2 – Information Literacy

- Gather, evaluate, synthesize, use, cite, and disseminate information from technology sources.

NBEA-IT3 – Digital Citizenship

- Demonstrate respectful, responsible, inclusive, and ethical behavior in a digital world.

NBEA-IT4 – Devices and Components

- Describe current and emerging devices and components; configure, install, and upgrade equipment; diagnose problems; and repair hardware.

NBEA-IT5 – Operating Systems

- Identify, evaluate, select, install, use, upgrade, and customize operating systems. Diagnose and solve problems with various types of operating system utilities.

NBEA-IT6 – Input Technologies

- Use various input technologies to enter and manipulate information appropriately.

NBEA-IT7 – Applications

- Identify, evaluate, select, install, use, upgrade, troubleshoot, and customize applications.

NBEA-IT8 – Digital Media

- Use, analyze, and create digital media.

NBEA-IT9 – Web Development and Design

- Design, develop, test, implement, update, and evaluate web solutions.

NBEA-IT10 – Database Management Systems

- Use, plan, develop, and maintain database management systems.

NBEA-IT11 – Project Management and Systems Analysis

- Analyze and design projects and information systems using appropriate management and development tools.

NBEA-IT12 – Programming and Application Development

- Design, develop, test, and implement programs and applications.

NBEA-IT13 – Data and Networking Infrastructures

- Develop the skills to design, deploy, and administer networks and telecommunications systems.

NBEA-IT14 – Information Technology Planning and Acquisition

- Plan the selection and acquisition of information technologies.

NBEA-IT15 – Security and Risk Management

- Design and implement security and risk management policies and procedures for information technology.

NBEA-IT16 – End-User Support and Training

- Develop the technical and interpersonal skills and knowledge to train and support a diverse user community.

NBEA-IT17 – Information Technology and Business Functions

- Describe the information technology components of business functions and explain their interrelationships.

NBEA-IT18 – Information Technology Careers

- Explore career opportunities in information technology.