IC3 Computing Fundamentals

Objective Domains

1. Mobile Devices

1.1 Understand cellular phone concepts

1.1.1 Recognize mobile device network-connection options
1.1.2 Recognize the requirements of cellular connections
1.1.3 Distinguish the capabilities and limitations of cellular phones

1.2 Understand cellular-enabled tablet concepts

1.2.1 Distinguish the capabilities and limitations of cellular tablets
1.2.2 Recognize the use of apps on tablets
1.2.3 Identify the benefits and limitations of WiFi and cellular tablet connections

1.3 Understand smartphone concepts

1.3.1 Distinguish the capabilities and limitations of smartphones
1.3.2 Recognize the use of apps on smartphones

1.4 Understand hardwired and general phone concepts

1.4.1 Identify the capabilities and limitations of hardwired phones
1.4.2 Recognize elements of a professional voicemail message

1.5 Recall and identify instant messaging concepts

1.5.1 Identify the capabilities and limitations of SMS and MMS
1.5.2 Recognize service requirements for instant messaging from mobile devices
1.5.3 Recognize the purpose of instant messaging clients

1.6 Configure notifications

1.6.1 Identify methods of creating notifications that will appear on mobile devices
1.6.2 Configure notifications on mobile devices
1.6.3 Configure notifications in Outlook

2. Hardware Devices

2.1 Identify the purposes of servers, desktop computers, and laptop computers

2.2 Understand device memory and storage concepts

2.2.1 Recognize the purpose of device memory
2.2.2 Identify activities that increase or decrease available device memory
2.2.3 Identify problems that can be resolved by increasing device memory
2.2.4 Recognize the purpose of storage devices
2.2.5 Identify typical storage devices
2.2.6 Identify activities that increase or decrease available device storage space
2.2.7 Identify problems that can be resolved by increasing storage space

2.3 Identify peripheral device concepts

2.3.1 Identify peripheral devices that connect to desktop computers, laptop computers,

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tablets, smartphones, and cellular phones

2.3.2 Recognize the types of data transmission supported by different connections

2.3.3 Identify peripheral devices that connect through audio, Ethernet, parallel, serial, PS/2, DVI, VGA, HDMI, and USB ports

2.3.4 Identify peripheral devices that connect through Bluetooth, WiFi, and infrared connections

2.4 Identify the pupose of Ethernet ports

2.5 Connect devices to a wireless network

2.6 Understand power management concepts

Note: On a Windows 10 computer

2.6.1 Analyze power management options

2.6.2 Identify factors that affect the battery life of a laptop

2.6.3 Modify power settings

2.6.4 Define and distinguish processes for shutting down, restarting, sleeping, or hibernating a computer

2.7 Illustrate device driver concepts

2.8 Identify platform differences

2.8.1 Compare device operating systems (Mac, Windows, Linux, iOS, Android)

2.9 Identify platform limitations

2.9.1 Identify media compatibility issues

2.9.2 Identify device limitations that affect application performance

2.10 Identify network connection concepts

2.10.1 Compare hardwired, wireless, and cellular networks

2.10.2 Distinguish between Internet service providers and cellular providers

2.11 Identify Internet connection concepts

2.11.1 Identify the hardware elements and services necessary to connect to a hardwired, wireless, or cellular network

2.11.2 Recognize the purpose of modems, routers, and network interface cards

2.11.3 Recognize the concepts of bandwidth

2.11.4 Identify system elements that affect Internet connection speed

2.11.5 Identify the types of networks typically present in a business environment

2.12 Identify various hardware configurations

2.12.1 Evaluate CPU, RAM, hard drive type and size, video card

2.13 Understand touchscreen device concepts

2.13.1 Identify features of touchscreen-enabled devices

2.13.2 Distinguish the capabilities and limitations of input using touch, keyboard, and mouse

3. Computer Software Architecture

3.1 Understand operating system updates

3.2 Recognize the scope of settings

3.2.1 Analyze the effect of changing system settings

3.2.2 Analyze the effect of changing application settings

3.3 Manage desktop settings and windows

3.3.1 Personalize the desktop

3.3.2 Configure a screensaver

3.3.3 Change the screen resolution

3.3.4 Set the desktop background

3.3.5 Minimize, maximize, and resize windows

3.4 Configure application options

Note: With Microsoft Office 2016 applications.

3.4.1 Add a command to the Quick Access Toolbar

3.4.2 Change the AutoSave frequency

3.4.3 Set the default font size

3.4.4 Configure print settings

3.5 Create and manage user accounts

3.5.1 Set up the appropriate user account type

3.5.2 Modify user account settings

3.6 Manage files and folders

3.6.1 Identify file name extensions and file formats

3.6.2 Identify the effects of file permissions

3.6.3 Move, copy, delete and rename files and folders

3.6.4 Create folders

3.7 Manage scanned documents

3.7.1 Recognize document-scanning concepts

3.7.2 Identify appropriate file formats for scanned documents

3.8 Navigate Windows menus

3.8.1 Use the Context Menus

3.9 Find files

3.9.1 Locate files on a computer by using built-in search functionality

3.9.2 Restrict search results by defining search options

3.9.3 Recall the default file download location

3.10 Understand administrative rights and permissions

3.10.1 Distinguish between administrative rights and standard user rights

3.10.2 Recognize the purposes of rights and permissions on an individual computer and within an organization

3.11 Understand IP address concepts

3.11.1 Recognize the purpose and format of IP addresses

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3.12 Manage software installations

3.12.1 Know how to install, uninstall, update, and repair software

3.12.2 Identify software installation locations and media

3.13 Troubleshoot basic computer problems

3.13.1 Recognize initial problem-solving techniques for hardware and software

3.13.2 Identify problems using the correct terminology

3.13.3 Use the troubleshooting Wizards

3.13.4 Identify the IP address of a computer

3.13.5 Identify the network connection speed of a computer

4. Backup and Restore

4.1 Understand file backup concepts

4.1.1 Identify reasons for backing up files

4.1.2 Identify the available file backup locations and media

4.1.3 Recognize the benefits and limitations of backing up files to the cloud, a network share, a portable hard drive, a CD or DVD, a USB drive, and the local computer

4.2 Back up files

4.2.1 Identify the available file backup utilities

4.2.2 Configure scheduled backups of files by using Windows Backup

4.2.3 Configure File History to back up files

4.3 Understand system backup, restore, and reformatting processes

4.3.1 Recognize the concepts of backing up and restoring computer system settings

4.3.2 Create a system restore point

4.3.3 Restore a computer to a system restore point

4.3.4 Recognize the concept and effect of restoring a computer or mobile device to the factory default settings

4.3.5 Recognize the concept and effect of reformatting a storage device

4.3.6 Reformat a flash drive

5. File Sharing

5.1 Manage file transfer

5.1.1 Identify file transfer options including network share, cloud storage, portable storage drive, CD, DVD, email

5.1.2 Identify the capabilities and limitations of each file transfer option

5.1.3 Recognize the security implications of each file transfer option

5.1.4 Copy a file to/from a network share, cloud storage location, and portable storage drive

5.1.5 Generate a link to a file in cloud storage

5.2 Perform file compression and extraction

5.2.1 Recognize the purpose and effect of file compression/zipping of files and folders

5.2.2 Identify situations in which you should compress/zip files before transferring them

5.2.3 Compress and extract files

6. Cloud Computing

6.1 Understand cloud concepts

6.1.1 Define cloud

6.1.2 Identify the requirements for accessing the cloud

6.2 Understand cloud storage concepts

6.2.1 Identify the benefits of cloud storage

6.2.2 Identify the requirements for using cloud storage

6.3 Manage file storage in the cloud

6.3.1 Upload content to the cloud

6.3.2 Download content from the cloud

6.3.3 Synchronize files between devices using the cloud

6.4 Compare online and local apps

6.4.1 Evaluate Software as a Service (SaaS) concepts

6.5 Differentiate between types of online apps

6.5.1 Identify online office/productivity apps

6.5.2 Identify cloud storage providers

6.5.3 Identify database-driven customer relationship management (CRM) apps

6.5.4 Recognize the purpose of Learning Management Systems (LMS)

6.5.5 Identify the use of discussion boards

7. Security

7.1 Understand credential management best practices

7.1.1 Identify the security implications of user names and passwords

7.1.2 Create secure passwords

7.1.3 Differentiate between secure and unsecure password storage solutions

7.1.4 Set or change user account permissions, passwords, and pictures

7.1.5 Identify the purpose of logging off from or locking a computer

7.1.6 Lock your computer

7.2 Recognize basic computer security threats

7.2.1 Define viruses, malware, Trojan programs, phishing, and social engineering

7.2.2 Recognize the effect of viruses, malware, Trojan programs, phishing, and social engineering

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7.3 Recognize surveillance software concepts

- 7.3.1 Classify surveillance software
- 7.3.2 Recognize the threat of surveillance software

7.4 Understand network and browser security

- 7.4.1 Recognize the security capabilities and limitations of wired and wireless network connections
- 7.4.2 Identify security risks and measures when using a public computer
- 7.4.3 Identify secure network connections
- 7.4.4 Assess the importance of clearing Internet browsing history
- 7.4.5 Delete temporary files, cookies, saved passwords, and web form information
- 7.4.6 Log out from online accounts and computer user accounts

7.5 Understand antivirus software concepts

- 7.5.1 Recognize the purpose and importance of antivirus software
- 7.5.2 Identify antivirus software
- 7.5.3 Maintain and update antivirus software

7.6 Understand firewall concepts

- 7.6.1 Identify the purpose of a firewall
- 7.6.2 Identify hardware and software firewalls
- 7.6.3 Recall security options managed by firewalls
- 7.6.4 Identify the effects of firewall configurations
- 7.6.5 Enable or disable a firewall

7.7 Identify e-commerce security risks

- 7.7.1 Recognize the need for e-commerce security
- 7.7.2 Identify secure browser connection (HTTPS)

7.8 Understand VPN connections

- 7.8.1 Recall the definition of a Virtual Private Network (VPN) connection
- 7.8.2 Recognize the purpose of VPN connections

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