

## 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

tablets, smartphones, and cellular phones

- 2.3.1 Recognize the types of data transmission supported by different connections
- 2.3.2 Identify peripheral devices that connect through audio, Ethernet, parallel, serial, PS/2, DVI, VGA, HDMI, and USB ports
- 2.3.3 Identify peripheral devices that connect through Bluetooth, WiFi, and infrared connections

## 2.4 Identify the purpose 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 Menu

## 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



## 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 Storage

- 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/zippping 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



## 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
- 7.1.3 Copy a file to/from a network share, cloud storage location, and portable storage drive  
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

## 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

