

IT ESSENTIALS V. 4.1
Module 7
Fundamental Printers and Scanners

7.0 Introduction		
1.	What do printers do?	Produce paper copies of electronic files
2.	What do scanners do?	Convert paper documents into electronic files
7.1 Describe the types of printers currently available		
7.1.1 Describe characteristics and capabilities of printers		
3.	Which type of printer uses electrophotographic technology?	Laser printers
4.	What criteria is used when selecting a printer?	Capacity, speed, color quality, reliability
5.	How is the speed of a printer measured?	Pages per minute (ppm)
6.	How does a printer produce color?	Subtractive mixing
7.	How do you choose between a black and white printer and a color printer?	Depends upon the needs of the customer
8.	How is the quality of printing measured?	Dots per inch (dpi)
9.	The more dpi, the _____ the resolution	Higher
10.	What is MTBF (mean time between failures)?	An average length of time that the printer works without failing
11.	What is included in the total cost of ownership (TCO)?	Purchase price, cost of supplies, price per page, maintenance costs, warranty cost
7.1.2 Describer printer to computer interfaces		
12.	What is serial data transfer?	The movement of single bits of information in a single cycle
13.	What is parallel data transfer?	The movement of multiple bits of information in a single cycle
14.	What is the current standard for parallel printer ports?	IEEE 1284
15.	What are other names for Firewire?	i-Link IEEE 1394
16.	What is Firewire?	A high-speed communication bus that is platform independent
17.	How many devices can Firewire support?	63
18.	What is the data transfer rate of Firewire?	400 Mbps
19.	What is required for infrared communication to take place between a printer and a computer?	Transmitters and receivers on each device; with a clear line of sight
20.	What is the maximum distance for infrared communication?	12 ft
21.	What is Bluetooth used for?	Wireless headsets, synching PDAs to laptops and desktops
22.	What is the standard for Wi-Fi?	802.11
23.	What is the data transfer rate for 80.211g?	54 Mbps

7.1.3 Describe laser printers		
24.	What is a laser printer?	A high-quality, fast printer that uses a laser beam to create an image
25.	What is the electrophotographic drum?	A metal cylinder that is coated with a light-sensitive insulating material
26.	What are the six steps of the laser printing process?	<ol style="list-style-type: none"> 1. Cleaning 2. Conditioning 3. Writing 4. Developing 5. Transferring 6. Fusing
27.	What takes place during the conditioning phase?	The old latent image is removed from the drum and the drum is ready for a new image
28.	What is the primary corona?	A charged wire or grid
29.	What is the charge of the primary corona?	-600 volts DC
30.	What is the charge applied to the drum during the writing process?	-100 volts DC
31.	What is toner?	A negatively-charged combination of plastic and metal particles
32.	What places a positive charge on the paper?	The transfer or secondary corona
33.	What is a mnemonic to help you remember the steps in the laser printing process?	Continuous Care Will Delay Trouble Forever
34.	What are two examples of impact printers?	Dot Matrix Daisy Wheel
35.	What are some advantages of impact printers?	Inexpensive consumables Continuous feed paper Has carbon-copy printing ability
36.	What are some disadvantages of impact printers?	Noisy Low resolution graphics Limited color capability slow
37.	What is the highest quality of print produced by a dot matrix printer?	NLQ – Near Letter Quality
7.1.5 Describe inkjet printers		
38.	How is the print quality of an inkjet printer measured?	Dots per inch (DPI)
39.	What are the two types of inkjet nozzles?	Thermal piezoelectric
40.	What controls the flow of ink in a piezoelectric nozzle?	The vibration of the crystal
41.	How long should you avoid touching a printout from an inkjet printer?	10 to 15 seconds
42.	What are the advantages of an inkjet printer?	Low cost High resolution Quick to warm up

7.1.6 Describe solid-ink printers		
43.	What are the advantages of solid-ink printers?	Produce vibrant color prints Easy to use Can use many different paper types
7.1.7 Describe other printer types		
44.	What is an advantage of a thermal printer?	Longer life because there are few moving parts
45.	Describe a dye-sublimation printer.	Uses solid sheets of ink that change directly from solid to gas CMYO – Cyan, Magenta, yellow, & clear overcoat Makes a pass for each color
7.2 Describe the installation and configuration process of printers		
46.	What is included on an installation CD?	Drivers, manuals, and diagnostic software
7.2.1 Describe how to set up a printer		
7.2.2 Explain how to power and connect the device using a local or network port		
47.	What is a local printer?	Connected directly to a computer port
48.	What is a network printer?	Connected to a network using a wireless or an Ethernet connection
49.	Why should you never connect a printer to a UPS?	The power surge that occurs when the printer is turned on damages the UPS
7.2.3 Describe how to install and update the device driver, firmware, and RAM		
50.	What are printer drivers?	Software programs that enable the computer and the printer to communicate with each other
51.	Where can you download printer drivers?	Manufacturer's website
52.	What is firmware?	A set of instructions stored on the printer
53.	How can you improve printing speed and allow the printer to handle more complex print jobs?	Add memory
7.2.4 Identify configuration options and default settings		
7.2.5 Describe how to optimize printer performance		
54.	How is most optimization completed?	Through software
55.	What do print spool settings do?	Cancel or pause current print jobs in the printer queue
7.2.6 Describe how to print a test page		
56.	Why should you print a test page?	To verify that the printer is operating properly
57.	What does the test page confirm?	The driver software is installed and working correctly and that the printer and computer are communicating
58.	How do you send a file to the printer from the command line in Windows XP?	Start > Run; type cmd Print thefile.txt
59.	Why would you test a printer from the printer panel?	Enables you to verify the printer operation separately from the network or computer
7.2.7 Describe how to share a printer		
60.	What does printer sharing do?	Enables multiple users or clients to access a

		printer that they are not directly connected to
61.	What are the steps to enable a computer to share a printer?	Windows XP Start > Printers & Faxes Rt click Printer Choose Properties Select Share Tab Click Share this printer button Keep or Change the Name Apply
7.3 Describe the types of scanners currently available		
7.3.1 Describe scanner types, resolution, and interfaces		
62.	What is an all-in-one device?	Combination device that can scan, print, send faxes, and make copies
63.	What are the three channels of a RGB image?	Red, Green, Blue
64.	What is OCR?	Optical character recognition
65.	How is the resolution of a scanner measured?	Dots per inch
66.	What does OCR software do?	Converts a scanned printed page into text that can be editing with a word processor
7.3.2 Describe all-in-one devices		
67.	What are the advantages of an all-in-one device?	All devices are built in Low cost Upgrades are easier Connection and setup is easy
7.3.3 Describe flatbed scanners		
68.	What are flatbed scanners used for?	To scan books and photos for archiving
69.	What is a sheet feeder?	A device that can be attached to some flatbed scanners to hold multiple sheets and feed them into the scanner one at a time
7.3.4 Describe handheld scanners		
7.3.5 Describe drum scanners		
70.	Where are drum scanners used?	High-end reproduction such as archiving photographs in a museum
7.4 Describe the installation and configuration process for scanners		
7.4.1 Explain how to power and connect a scanner		
7.4.2 Describe how to install and update the device driver		
71.	Why would you want to install drivers from the manufacturer's website?	To gain additional functionality, diagnostic tools and troubleshooting utilities
7.4.3 Identify configuration options and default settings		
72.	Why is color calibration important?	So you can see true representations of color
73.	How do you calibrate a scanner?	Scan a graphic that contains specific colors
7.5 Identify and apply common preventive maintenance techniques for printers and scanners		
7.5.4 Describe printer maintenance		
74.	Where can you find the maintenance schedule for a printer?	Manual or manufacturer's website

75.	What can affect the life of the printer?	Type and quality of paper and ink
76.	Why should you avoid refilling ink cartridges?	Because the ink can leak
7.5.2 Describe scanner maintenance		
77.	How should you clean a scanner?	Dampen a cloth with cleaner and apply gently to the glass
78.	Why should you never lay anything heavy on a scanner?	You could damage the case or internal parts
7.6 Troubleshoot printers and scanners		
79.	What are the steps in the troubleshooting process?	<ol style="list-style-type: none"> 1. Identify the problem 2. Establish a theory of probably cause 3. Determine exact cause 4. Implement solution 5. Verify solution and full system functionality 6. Document findings
7.6.1 Review the troubleshooting process		
7.6.2 Identify common problems and solutions		
80.	What is the probable cause if a printer is printing unknown characters or does not print a test page?	Wrong or outdated driver