



TestOut IT Fundamentals Pro – English 2.1.x

Objective Mappings:

TestOut IT Fundamentals Pro
CompTIA IT Fundamentals FC0-U61

Contents

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Objective Mapping: LabSim Section to TestOut IT Fundamentals Pro Objective

The TestOut IT Fundamentals Pro course covers the following TestOut IT Fundamentals Pro exam objectives:

Section	Title	Objectives
1.0	Course Overview	
1.1	Chapter Introduction	
1.2	What Is Information Technology?	
1.3	Technology and Ethics	
2.0	Information Technology Basics	
2.1	Chapter Introduction	
2.2	Introduction to Computers	
2.3	Digital Data	
2.4	Media Formatting	
2.5	Digital Media Careers	
3.0	Computer Hardware	
3.1	Chapter Introduction	
3.2	Computing Devices	

3.3	Internal Components	1.1 Internal Components Explore motherboard components. Install and upgrade components.
3.4	Input and Output	1.2 Input & Output Connect proper cables to a computer system. Connect peripherals to a computer system.
3.5	Storage	1.3 Storage Install storage media into a computer. Create volumes and format drives. Perform Disk Maintenance.
3.6	Hardware Troubleshooting	1.1 Internal Components Troubleshoot components. 1.3 Storage Troubleshoot System Power.
3.7	Computer Hardware Careers	
4.0	Computer Software	
4.1	Chapter Introduction	
4.2	Operating Systems	3.1 System Software Change display settings in Windows.

4.3	More System Software	<p>1.1 Internal Components</p> <p>Clear CMOS settings.</p> <p>3.1 System Software</p> <p>Use Windows Device Manager to update drivers. Update and manage BIOS/UEFI settings.</p> <p>3.2 File Management</p> <p>Create a virtual machine.</p>
4.4	File Management	<p>3.2 File Management</p> <p>Manage files and folders in the Windows file system. Manage file and NTFS permissions. Use command line utilities.</p>
4.5	Application Software	<p>2.1 Applications</p> <p>Pin and unpin applications to the Start Menu and taskbar. Use Microsoft Word to open, modify and save a document Use Microsoft PowerPoint to open, modify and run a slide show.</p>
4.6	Printing	<p>2.2 Printing</p> <p>Open and print a document from Microsoft Word. Configure local and network printing.</p>
4.7	Software Troubleshooting	<p>2.3 Application Delivery</p> <p>Use Windows Task Manager to manage application startup.</p>
4.8	System Support Careers	

5.0	Internet Technologies	
5.1	Chapter Introduction	
5.2	The World Wide Web	
5.3	Web Browsers	4.1 Internet Technologies Configure browser privacy and security features. Enable and use a Proxy Server. Clear browser cache.
5.4	Cloud Computing	4.1 Internet Technologies Copy files from the local Windows file system to OneDrive.
5.5	Social Media	
5.6	Internet Communications Technologies	4.1 Internet Technologies Use Microsoft Outlook to respond to email.
5.7	The Internet of Things	4.1 Internet Technologies Configure and manage smart devices.
5.8	Online Research	
5.9	Internet Technology Careers	
6.0	Networking	
6.1	Chapter Introduction	

6.2	Networking Basics	4.2 Network Configuration Install, configure and manage a network connection.
6.3	Wired and Wireless Networking	2.2 Printing Configure local and network printing. 4.2 Network Configuration Connect to, configure and use a secure wireless network. Install, configure and manage a network connection. Manage mobile and bluetooth devices.
6.4	Internet Connectivity	4.2 Network Configuration Use a cable modem to connect to the Internet. Connect to, configure and use a secure wireless network. Manage mobile and bluetooth devices. Configure and manage a VPN connection.
6.5	Networking Protocols	4.2 Network Configuration Install, configure and manage a network connection.
6.6	Application Delivery	2.3 Application Delivery Configure a Windows system for automatic updates.
6.7	Network Troubleshooting	4.2 Network Configuration Troubleshoot network connections.
6.8	Networking Careers	

7.0	Databases	
7.1	Chapter Introduction	
7.2	Introduction to Databases	5.1 Database Access Use Microsoft Access to explore database objects.
7.3	Relational Databases	5.1 Database Access Create database tables using Microsoft Access. Create table relationships using Microsoft Access.
7.4	Querying Databases	5.2 Database Queries Use Microsoft Access to perform basic queries. Write SQL commands to retrieve all data from a table. Write SQL commands to retrieve data matching criteria. Write SQL commands to add and delete records.
7.5	Non-relational Databases	
7.6	Database Careers	
8.0	Programming	
8.1	Chapter Introduction	
8.2	Programming Overview	
8.3	Programming Fundamentals	6.1 Programming Fundamentals Use JavaScript to create an If... Else statement. Use JavaScript to define and call a function. Use JavaScript to create for loop and a while loop.

8.4	Programming Paradigms and Processes	
8.5	Web Development	<p>6.2 Web Development</p> <p>Use HTML tags for head, body, ordered list, and unordered list.</p> <p>Use HTML to add headings, images and hyperlinks to a web page.</p> <p>Use HTML to Link a CSS file to an HTML page.</p> <p>Create CSS Style sheets to add a drop shadow to an element.</p> <p>Create CSS style sheets to resize an image and change a font.</p> <p>Use JavaScript to add functionality to a button on a web page.</p>
8.6	Programming Careers	
9.0	Information Systems	
9.1	Chapter Introduction	
9.2	Introduction to Business Systems	
9.3	Data Analysis	<p>2.1 Applications</p> <p>Use Microsoft Excel Tables and Charts to analyze data.</p> <p>5.1 Database Access</p> <p>Use Microsoft Access Reports to Analyze Data.</p>
9.4	Designing and Implementing Systems	
9.5	Intellectual Property	

9.6	Information System Careers	
10.0	Cybersecurity	
10.1	Chapter Introduction	
10.2	Security Threats	<p>7.2 Device Security</p> <p>Evaluate possible social engineering exploits.</p>
10.3	Authentication	<p>7.2 Device Security</p> <p>Configure access control and authentication.</p>
10.4	Data Encryption	<p>7.1 Device Security</p> <p>Secure a home wireless network.</p> <p>7.2 Device Security</p> <p>Configure File Encryption.</p>
10.5	Device Security	<p>7.1 Device Security</p> <p>Configure Windows Defender to protect your home computer. Configure Windows Firewall for different networks. Configure remote wipe on a device.</p> <p>7.2 Device Security</p> <p>Configure access control and authentication.</p>
10.6	Business Continuity Plans	<p>1.3 Storage</p> <p>Create volumes and format drives.</p>

		<p>7.1 Device Security</p> <p>Install and configure a UPS.</p> <p>7.2 Device Security</p> <p>Configure Windows backup settings. Configure and restore data using File History.</p>
10.7	Cybersecurity Careers	
11.0	IT Career Preparation	
11.1	Chapter Introduction	
11.2	Education and Training	
11.3	Finding a Job	
A.0	TestOut IT Fundamentals Pro - Practice Exams	
A.1	Prepare for TestOut IT Fundamentals Pro Certification	
A.2	TestOut IT Fundamentals Pro Question Review	
B.0	CompTIA IT Fundamentals (FC0-U61) - Practice Exams	
B.1	Prepare for CompTIA IT Fundamentals FC0-U61 Certification	
B.2	CompTIA IT Fundamentals FC0-U61 Domain Review (20 Questions)	
B.3	CompTIA IT Fundamentals FC0-U61 Domain Review (All Questions)	

Objective Mapping: TestOut IT Fundamentals Pro Objective to LabSim Section

The TestOut IT Fundamentals Pro course and certification exam cover the following TestOut IT Fundamentals Pro objectives:

#	Domain	Module.Section
1.0	Hardware	
1.1	Internal Components Explore motherboard components. Install and upgrade components. Troubleshoot components. Clear CMOS settings.	3.3, 3.6 4.3
1.2	Input & Output Connect proper cables to a computer system. Connect peripherals to a computer system.	3.4
1.3	Storage Install storage media into a computer. Create volumes and format drives. Perform Disk Maintenance. Troubleshoot System Power.	3.5, 3.6 10.6
2.0	Software	
2.1	Applications Pin and unpin applications to the Start Menu and taskbar. Use Microsoft Word to open, modify and save a document Use Microsoft PowerPoint to open, modify and run a slide show. Use Microsoft Excel Tables and Charts to analyze data.	4.5 9.3

	Troubleshoot applications.	
2.2	Printing Open and print a document from Microsoft Word. Configure local and network printing.	4.6 6.3
2.3	Application Delivery Configure a Windows system for automatic updates. Use Windows Task Manager to manage application startup.	4.7 6.6
3.0	Operating Systems	
3.1	System Software Change display settings in Windows. Use Windows Device Manager to update drivers. Update and manage BIOS/UEFI settings. Explore operating systems.	4.2, 4.3
3.2	File Management Manage files and folders in the Windows file system. Manage file and NTFS permissions. Use command line utilities. Create a virtual machine.	4.3, 4.4
4.0	Networking	
4.1	Internet Technologies Use Microsoft Outlook to respond to email. Configure browser privacy and security features. Copy files from the local Windows file system to OneDrive. Configure and manage smart devices.	5.3, 5.4, 5.6, 5.7

	<p>Enable and use a Proxy Server. Clear browser cache.</p>	
4.2	<p>Network Configuration</p> <p>Use a cable modem to connect to the Internet. Connect to, configure and use a secure wireless network. Install, configure and manage a network connection. Troubleshoot network connections. Manage mobile and bluetooth devices. Configure and manage a VPN connection.</p>	6.2, 6.3, 6.4, 6.5, 6.7
5.0	Databases	
5.1	<p>Database Access</p> <p>Use Microsoft Access to explore database objects. Use Microsoft Access Reports to Analyze Data. Create database tables using Microsoft Access. Create table relationships using Microsoft Access.</p>	7.2, 7.3 9.3
5.2	<p>Database Queries</p> <p>Use Microsoft Access to perform basic queries. Write SQL commands to retrieve all data from a table. Write SQL commands to retrieve data matching criteria. Write SQL commands to add and delete records.</p>	7.4
6.0	Programming	
6.1	<p>Programming Fundamentals</p> <p>Use JavaScript to create an If... Else statement. Use JavaScript to define and call a function. Use JavaScript to create for loop and a while loop.</p>	8.3

6.2	Web Development <p>Use HTML tags for head, body, ordered list, and unordered list. Use HTML to add headings, images and hyperlinks to a web page. Use HTML to Link a CSS file to an HTML page. Create CSS Style sheets to add a drop shadow to an element. Create CSS style sheets to resize an image and change a font. Use JavaScript to add functionality to a button on a web page.</p>	8.5
7.0	IT Systems and Security	
7.1	Device Security <p>Configure Windows Defender to protect your home computer. Configure Windows Firewall for different networks. Secure a home wireless network. Configure remote wipe on a device. Install and configure a UPS.</p>	10.4, 10.5, 10.6
7.2	Device Security <p>Configure Windows backup settings. Configure access control and authentication. Configure File Encryption. Configure and restore data using File History. Evaluate possible social engineering exploits.</p>	10.2, 10.3, 10.4, 10.5, 10.6

Objective Mapping: LabSim Section to CompTIA IT Fundamentals FC0-U61 Objective

The TestOut IT Fundamentals Pro course covers the following CompTIA IT Fundamentals exam objectives:

Section	Title	Objectives
1.0	Course Overview	
1.1	Chapter Introduction	
1.2	What Is Information Technology?	
1.3	Technology and Ethics	
2.0	Information Technology Basics	
2.1	Chapter Introduction	
2.2	Introduction to Computers	1.3 Illustrate the basics of computing and processing. Input Processing Output Storage
2.3	Digital Data	1.1 Compare and contrast notational systems. Binary Hexadecimal Decimal Data representation ASCII Unicode

		<p>1.5 Compare and contrast common units of measure.</p> <p>Storage unit</p> <p>Bit Byte KB MB GB TB PB</p> <p>Throughput unit</p> <p>bps Kbps Mbps Gbps Tbps</p> <p>Processing speed</p> <p>MHz GHz</p>
2.4	Media Formatting	<p>3.2 Compare and contrast components of an operating system.</p> <p>Features</p> <p>Compression</p>
2.5	Digital Media Careers	
3.0	Computer Hardware	
3.1	Chapter Introduction	

3.2	Computing Devices	<p>2.6 Compare and contrast common computing devices and their purposes.</p> <p>Mobile phones Tablets Laptops Workstations</p>
3.3	Internal Components	<p>2.3 Explain the purpose of common internal computing components.</p> <p>Motherboard/system board Firmware/BIOS RAM CPU</p> <p>ARM (Mobile phone; Tablet) 32-bit (Laptop; Workstation; Server) 64-bit (Laptop; Workstation; Server)</p> <p>GPU Cooling NIC</p> <p>Wired vs. wireless On-board vs. add-on card</p>
3.4	Input and Output	<p>2.1 Classify common types of input/output device interfaces.</p> <p>Networking</p> <p>Wired (Telephone connector (RJ-11); Ethernet connector (RJ-45)) Wireless (Bluetooth; NFC)</p> <p>Peripheral device</p> <p>USB FireWire Thunderbolt Bluetooth</p>

		<p>RF</p> <p>Graphic device</p> <p>VGA HDMI DVI DisplayPort Mini DisplayPort</p> <p>2.2 Given a scenario, set up and install common peripheral devices to a laptop/PC.</p> <p>Devices</p> <p>Printer Scanner Keyboard Mouse Camera Speakers Display</p> <p>Installation types</p> <p>Plug-and-play vs. driver installation Other required steps IP-based peripherals Web-based configuration steps</p>
3.5	Storage	<p>2.2 Given a scenario, set up and install common peripheral devices to a laptop/PC.</p> <p>Devices</p> <p>External hard drive</p> <p>2.3 Explain the purpose of common internal computing components.</p> <p>Storage</p>

		<p>Hard drive SSD</p> <p>2.5 Compare and contrast storage types.</p> <p>Volatile vs. non-volatile Local storage types</p> <p>RAM Hard drive (Solid state vs. spinning disk) Optical Flash drive</p> <p>3.1 Explain the purpose of operating systems.</p> <p>Disk management</p> <p>3.2 Compare and contrast components of an operating system.</p> <p>File systems and features</p> <p>File systems (NTFS; FAT32; HFS; Ext4)</p> <p>Features</p> <p>Compression Encryption Permissions Journaling Limitations Naming rules</p> <p>File management</p> <p>Folders/directories File types and extensions Permissions</p>
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3.6	Hardware Troubleshooting	<p>1.6 Explain the troubleshooting methodology.</p> <p>Identify the problem</p> <p>Gather information Duplicate the problem, if possible Question users Identify symptoms Determine if anything has changed Approach multiple problems individually</p> <p>Research knowledge base/Internet, if applicable Establish a theory of probable cause</p> <p>Question the obvious Consider multiple approaches (e.g. divide and conquer)</p> <p>Test the theory to determine the cause</p> <p>Once the theory is confirmed (confirmed root cause), determine the next steps to resolve the problem If the theory is not confirmed, establish a new theory or escalate</p> <p>Establish a plan of action to resolve the problem and identify potential effects Implement the solution or escalate as necessary Verify full system functionality and, if applicable, implement preventive measures Document findings/lessons learned, actions, and outcomes</p>
3.7	Computer Hardware Careers	
4.0	Computer Software	
4.1	Chapter Introduction	
4.2	Operating Systems	<p>2.6 Compare and contrast common computing devices and their purposes.</p> <p>Gaming consoles</p>

		<p>3.1 Explain the purpose of operating systems.</p> <p>Interface between applications and hardware Disk management Process management/scheduling</p> <p>Kill process/end task</p> <p>Application management Memory management Device management Access control/protection Types of OS</p> <p>Mobile device OS Workstation OS Server OS Embedded OS (Firmware) Hypervisor (Type 1)</p> <p>3.2 Compare and contrast components of an operating system.</p> <p>Services Processes Interfaces</p> <p>Console/command line GUI</p>
4.3	More System Software	<p>2.3 Explain the purpose of common internal computing components.</p> <p>Firmware/BIOS</p> <p>3.1 Explain the purpose of operating systems.</p> <p>Device management</p> <p>3.2 Compare and contrast components of an operating system.</p>

		<p>Drivers Utilities</p> <p>Task scheduling</p>
4.4	File Management	<p>3.2 Compare and contrast components of an operating system.</p> <p>Features</p> <p>Permissions</p> <p>File management</p> <p>Folders/directories File types and extensions Permissions</p> <p>Interfaces</p> <p>GUI</p>
4.5	Application Software	<p>3.1 Explain the purpose of operating systems.</p> <p>Application management Types of OS</p> <p>Workstation OS</p> <p>3.3 Explain the purpose and proper use of software.</p> <p>Productivity software</p> <p>Word processing software Spreadsheet software Presentation software Web browser Visual diagramming software</p>

		<p>Collaboration software</p> <p>Email client Conferencing software Instant messaging software Online workspace Document sharing</p> <p>Business software</p> <p>Database software Project management software Business-specific applications Accounting software</p>
4.6	Printing	<p>3.1 Explain the purpose of operating systems.</p> <p>Interface between applications and hardware Device management Types of OS</p> <p>Workstation OS</p> <p>3.2 Compare and contrast components of an operating system.</p> <p>Drivers Interfaces</p> <p>GUI</p> <p>3.3 Explain the purpose and proper use of software.</p> <p>Productivity software</p> <p>Word processing software</p>
4.7	Software Troubleshooting	<p>3.1 Explain the purpose of operating systems.</p>

		Process management/scheduling Application management 3.2 Compare and contrast components of an operating system. Utilities Task scheduling
4.8	System Support Careers	
5.0	Internet Technologies	
5.1	Chapter Introduction	
5.2	The World Wide Web	2.4 Compare and contrast common Internet service types. Wireless Radio frequency 2.6 Compare and contrast common computing devices and their purposes. IoT 2.7 Explain basic networking concepts. Basics of network communication DNS (URL-to-IP translation) Device addresses IP address Basic protocols

		<p>HTTP/S</p> <p>3.3 Explain the purpose and proper use of software.</p> <p>Productivity software</p> <p>Web browser</p>
5.3	Web Browsers	<p>3.3 Explain the purpose and proper use of software.</p> <p>Productivity software</p> <p>Web browser</p> <p>3.5 Given a scenario, configure and use web browsers.</p> <p>Caching/clearing cache Deactivate client-side scripting Browser add-ons/extensions</p> <p>Add Remove Enable/disable</p> <p>Private browsing Proxy settings Certificates</p> <p>Valid Invalid</p> <p>Popup blockers Script blockers Compatible browser for application(s)</p>
5.4	Cloud Computing	<p>2.5 Compare and contrast storage types.</p>

		<p>Cloud storage service</p> <p>3.3 Explain the purpose and proper use of software.</p> <p>Collaboration software</p> <p>3.4 Explain methods of application architecture and delivery models.</p> <p>Application delivery methods</p> <p>Cloud hosted (Internet access required; Service required; Files saved in the cloud)</p>
5.5	Social Media	<p>6.3 Summarize behavioral security concepts.</p> <p>Expectations of privacy when using:</p> <p>The Internet (Social networking sites; Email; File sharing; Instant messaging)</p>
5.6	Internet Communications Technologies	<p>2.6 Compare and contrast common computing devices and their purposes.</p> <p>IoT</p> <p>Streaming media devices</p> <p>3.3 Explain the purpose and proper use of software.</p> <p>Collaboration software</p> <p>Email client</p>
5.7	The Internet of Things	<p>2.6 Compare and contrast common computing devices and their purposes.</p> <p>IoT</p> <p>Home appliances</p> <p>Home automation devices (Thermostats; Security systems)</p> <p>Modern cars</p>

		<p>IP cameras</p> <p>Streaming media devices</p> <p>Medical devices</p>
5.8	Online Research	<p>3.3 Explain the purpose and proper use of software.</p> <p>Productivity software</p> <p>Web browser</p> <p>3.5 Given a scenario, configure and use web browsers.</p> <p>Compatible browser for application(s)</p>
5.9	Internet Technology Careers	
6.0	Networking	
6.1	Chapter Introduction	
6.2	Networking Basics	<p>2.1 Classify common types of input/output device interfaces.</p> <p>Networking</p> <p>Wired (Telephone connector (RJ-11); Ethernet connector (RJ-45))</p> <p>Wireless (Bluetooth; NFC)</p> <p>Peripheral device</p> <p>Bluetooth</p> <p>RF</p> <p>2.5 Compare and contrast storage types.</p> <p>Local network storage types</p>

		<p>File server</p> <p>2.6 Compare and contrast common computing devices and their purposes.</p> <p>Servers</p> <p>2.7 Explain basic networking concepts.</p> <p>Basics of network communication</p> <p>LAN vs. WAN</p> <p>Device addresses</p> <p>IP address MAC address</p> <p>Basic protocols Devices</p> <p>Modem Router Switch Access point Firewall</p>
6.3	Wired and Wireless Networking	<p>2.1 Classify common types of input/output device interfaces.</p> <p>Networking</p> <p>Wired (Telephone connector (RJ-11); Ethernet connector (RJ-45))</p> <p>2.8 Given a scenario, install, configure and secure a basic wireless network.</p> <p>802.11a/b/g/n/ac</p> <p>Older vs. newer standards Speed limitations</p>

		<p>Interference and attenuation factors</p> <p>Best practices</p> <p>Change SSID Change default password Encrypted vs. unencrypted (Open: Captive portal; WEP; WPA; WPA2)</p>
6.4	Internet Connectivity	<p>2.4 Compare and contrast common Internet service types.</p> <p>Fiber optic Cable DSL Wireless</p> <p>Radio frequency Satellite Cellular</p> <p>2.7 Explain basic networking concepts.</p> <p>Devices</p> <p>Modem</p>
6.5	Networking Protocols	<p>2.7 Explain basic networking concepts.</p> <p>Basics of network communication</p> <p>Basics of packet transmission DNS (URL-to-IP translation)</p> <p>Device addresses</p> <p>IP address</p> <p>Basic protocols</p>

		<p>HTTP/S POP3 IMAP SMTP</p> <p>3.3 Explain the purpose and proper use of software.</p> <p>Collaboration software</p> <p>Email client</p> <p>6.6 Explain common uses of encryption.</p> <p>Data in transit</p> <p>Email</p>
6.6	Application Delivery	<p>3.2 Compare and contrast components of an operating system.</p> <p>Interfaces</p> <p>GUI</p> <p>3.4 Explain methods of application architecture and delivery models.</p> <p>Application delivery methods</p> <p>Locally installed (Network not required; Application exists locally; Files saved locally)</p> <p>Local network hosted (Network required; Internet access not required)</p> <p>Cloud hosted (Internet access required; Service required; Files saved in the cloud)</p> <p>Application architecture models</p> <p>One tier Two tier Three tier n-tier</p>

3.6 Compare and contrast general application concepts and uses.

Single-platform software
Cross-platform software

Compatibility concerns

Licensing

Single use
Group use/site license
Concurrent license
Open source vs. proprietary
Subscription vs. one-time purchase
Product keys and serial numbers

Software installation best practices

Reading instructions
Reading agreements
Advanced options

6.2 Explain methods to secure devices and best practices.

Device use best practices

Software sources (Validating legitimate sources; Researching legitimate sources;
OEM websites vs. third-party websites)
Removal of unwanted software
Removal of unnecessary software
Removal of malicious software

6.6 Explain common uses of encryption.

Data in transit

VPN

6.7

Network Troubleshooting

6.8	Networking Careers	
7.0	Databases	
7.1	Chapter Introduction	
7.2	Introduction to Databases	<p>5.1 Explain database concepts and the purpose of a database.</p> <p>Usage of database</p> <p>Create Import/input Query Reports</p> <p>5.3 Summarize methods used to interface with databases.</p> <p>Database access methods</p> <p>User interface/utility access Query/report builders</p>
7.3	Relational Databases	<p>4.1 Compare and contrast programming language categories.</p> <p>Query languages</p> <p>5.1 Explain database concepts and the purpose of a database.</p> <p>Flat file vs. database</p> <p>Multiple concurrent users Scalability Speed</p> <p>Records Storage</p>

		<p>Data persistence</p> <p>5.2 Compare and contrast various database structures.</p> <p>Relational databases</p> <p>Schema Tables (Rows/records; Fields/columns - Primary key, Foreign key; Constraints)</p> <p>5.3 Summarize methods used to interface with databases.</p> <p>Relational methods</p> <p>Data manipulation (Select; Insert; Delete; Update) Data definition (Create; Alter; Drop; Permissions)</p> <p>Export/import</p> <p>Database dump Backup</p>
7.4	Querying Databases	<p>4.1 Compare and contrast programming language categories.</p> <p>Query languages</p> <p>5.1 Explain database concepts and the purpose of a database.</p> <p>Usage of database</p> <p>Query</p> <p>5.3 Summarize methods used to interface with databases.</p> <p>Relational methods</p> <p>Data manipulation (Select; Insert; Delete; Update)</p>

		<p>Database access methods</p> <p>Direct/manual access Programmatic access User interface/utility access Query/report builders</p>
7.5	Non-relational Databases	<p>5.1 Explain database concepts and the purpose of a database.</p> <p>Flat file vs. database</p> <p>Variety of data</p> <p>5.2 Compare and contrast various database structures.</p> <p>Structured vs. semi-structured vs. non-structured Non-relational databases</p> <p>Key/value databases Document databases</p>
7.6	Database Careers	
8.0	Programming	
8.1	Chapter Introduction	
8.2	Programming Overview	<p>1.2 Compare and contrast fundamental data types and their characteristics.</p> <p>Char Strings Numbers</p> <p>Integers Floats</p>

Boolean

4.1 Compare and contrast programming language categories.

Interpreted

Scripting languages

Scripted languages

Markup languages

Compiled programming languages

Query languages

Assembly language

4.2 Given a scenario, use programming organizational techniques and interpret logic.

Organizational techniques

Pseudocode concepts

Flow-chart concepts (Sequence)

4.3 Explain the purpose and use of programming concepts.

Identifiers

Variables

Constants

Containers

Arrays

Vectors

Functions

Objects

Properties

Attributes

Methods

8.3	Programming Fundamentals	<p>1.2 Compare and contrast fundamental data types and their characteristics.</p> <p>Char Strings Numbers</p> <p>Integers Floats</p> <p>Boolean</p> <p>4.2 Given a scenario, use programming organizational techniques and interpret logic.</p> <p>Organizational techniques</p> <p>Pseudocode concepts</p> <p>Logic components</p> <p>Branching Looping</p> <p>4.3 Explain the purpose and use of programming concepts.</p> <p>Identifiers</p> <p>Variables Constants</p> <p>Containers</p> <p>Arrays</p> <p>Functions</p>
8.4	Programming Paradigms and Processes	<p>4.1 Compare and contrast programming language categories.</p> <p>Interpreted</p>

		<p>4.3 Explain the purpose and use of programming concepts.</p> <p>Objects</p> <p>Properties Attributes Methods</p>
8.5	Web Development	<p>4.1 Compare and contrast programming language categories.</p> <p>Interpreted</p> <p>Scripting languages Scripted languages Markup languages</p>
8.6	Programming Careers	
9.0	Information Systems	
9.1	Chapter Introduction	
9.2	Introduction to Business Systems	<p>1.4 Explain the value of data and information.</p> <p>Data-driven business decisions</p> <p>Data capture and collection Data correlation Meaningful reporting</p> <p>3.3 Explain the purpose and proper use of software.</p> <p>Business software</p> <p>Database software Project management software Business-specific applications</p>

		Accounting software
9.3	Data Analysis	<p>1.4 Explain the value of data and information.</p> <p>Data and information as assets Importance of investing in security Relationship of data to creating information Intellectual property</p> <p>Trademarks Copyright Patents</p> <p>Digital products Data-driven business decisions</p> <p>Data capture and collection Data correlation Meaningful reporting</p>
9.4	Designing and Implementing Systems	
9.5	Intellectual Property	<p>1.4 Explain the value of data and information.</p> <p>Intellectual property</p> <p>Trademarks Copyright Patents</p>
9.6	Information System Careers	
10.0	Cybersecurity	
10.1	Chapter Introduction	

10.2	Security Threats	<p>6.1 Summarize confidentiality, integrity and availability concerns.</p> <p>Confidentiality concerns</p> <p>Snooping Eavesdropping Wiretapping Social engineering Dumpster diving</p> <p>Integrity concerns</p> <p>Man-in-the-middle Replay attack Impersonation Unauthorized information alteration</p> <p>Availability concerns</p> <p>Denial of service Power outage Hardware failure Destruction Service outage</p> <p>6.3 Summarize behavioral security concepts.</p> <p>Expectations of privacy when using:</p> <p>The Internet (Social networking sites; Email; File sharing; Instant messaging) Mobile applications Desktop software Business software Corporate network</p>
10.3	Authentication	<p>6.4 Compare and contrast authentication, authorization, accounting and non-repudiation concepts.</p> <p>Authentication</p>

		<p>Single factor Multifactor Examples of factors (Password; PIN; One-time password; Software token; Hardware token; Biometrics; Specific location; Security questions) Single sign-on</p> <p>Authorization</p> <p>Permissions Least privilege model Role-based access (User account types) Rule-based access Mandatory access controls Discretionary access controls</p> <p>Accounting</p> <p>Logs Tracking Web browser history</p> <p>Non-repudiation</p> <p>Video Biometrics Signature Receipt</p>
10.4	Data Encryption	<p>6.6 Explain common uses of encryption.</p> <p>Plain text vs. cipher text Data at rest</p> <p>File level Disk level</p> <p>Data in transit</p> <p>Email HTTPS</p>

		VPN Mobile application
10.5	Device Security	<p>6.2 Explain methods to secure devices and best practices.</p> <p>Securing devices (mobile/workstation)</p> <p>Antivirus/Anti-malware Host firewall Changing default passwords Enabling passwords Safe browsing practices Patching/updates</p> <p>6.5 Explain password best practices.</p> <p>Password length Password complexity Password history Password expiration Password reuse across sites Password managers Password reset process</p> <p>6.6 Explain common uses of encryption.</p> <p>Data in transit</p> <p>HTTPS Mobile application</p>
10.6	Business Continuity Plans	<p>2.5 Compare and contrast storage types.</p> <p>Local network storage types</p> <p>NAS File server</p>

		<p>6.3 Summarize behavioral security concepts.</p> <p>Written policies and procedures Handling of confidential information</p> <p>Passwords Personal information Customer information Company confidential information</p> <p>6.7 Explain business continuity concepts.</p> <p>Fault tolerance</p> <p>Replication Redundancy (Data; Network; Power) Backup considerations (Data - File backups, Critical data, Database, OS backups; Location - Stored Locally, Cloud Storage, On-site vs. off-site) Contingency plan</p> <p>Disaster recovery</p> <p>Data restoration Prioritization Restoring access</p>
10.7	Cybersecurity Careers	
11.0	IT Career Preparation	
11.1	Chapter Introduction	
11.2	Education and Training	
11.3	Finding a Job	

A.0	TestOut IT Fundamentals Pro - Practice Exams	
A.1	Prepare for TestOut IT Fundamentals Pro Certification	
A.2	TestOut IT Fundamentals Pro Question Review	
B.0	CompTIA IT Fundamentals (FC0-U61) - Practice Exams	
B.1	Prepare for CompTIA IT Fundamentals FC0-U61 Certification	
B.2	CompTIA IT Fundamentals FC0-U61 Domain Review (20 Questions)	
B.3	CompTIA IT Fundamentals FC0-U61 Domain Review (All Questions)	

Objective Mapping: CompTIA IT Fundamentals FC0-U61 Objective to LabSim Section

The TestOut IT Fundamentals Pro course and certification exam cover the following CompTIA IT Fundamentals objectives:

#	Domain	Module.Section
1.0	IT Concepts and Terminology	
1.1	Compare and contrast notational systems. Binary Hexadecimal Decimal Data representation <ul style="list-style-type: none">○ ASCII○ Unicode	2.3
1.2	Compare and contrast fundamental data types and their characteristics. Char Strings Numbers <ul style="list-style-type: none">○ Integers○ Floats Boolean	8.2, 8.3
1.3	Illustrate the basics of computing and processing. Input Processing Output Storage	2.2
1.4	Explain the value of data and information.	9.2, 9.3, 9.5

	<p>Data and information as assets</p> <p>Importance of investing in security</p> <p>Relationship of data to creating information</p> <p>Intellectual property</p> <ul style="list-style-type: none"> ○ Trademarks ○ Copyright ○ Patents <p>Digital products</p> <p>Data-driven business decisions</p> <ul style="list-style-type: none"> ○ Data capture and collection ○ Data correlation ○ Meaningful reporting 	
1.5	<p>Compare and contrast common units of measure.</p> <p>Storage unit</p> <ul style="list-style-type: none"> ○ Bit ○ Byte ○ KB ○ MB ○ GB ○ TB ○ PB <p>Throughput unit</p> <ul style="list-style-type: none"> ○ bps ○ Kbps ○ Mbps ○ Gbps ○ Tbps <p>Processing speed</p> <ul style="list-style-type: none"> ○ MHz ○ GHz 	2.3
1.6	<p>Explain the troubleshooting methodology.</p> <p>Identify the problem</p> <ul style="list-style-type: none"> ○ Gather information ○ Duplicate the problem, if possible ○ Question users ○ Identify symptoms 	3.6

	<ul style="list-style-type: none"> ○ Determine if anything has changed ○ Approach multiple problems individually <p>Research knowledge base/Internet, if applicable</p> <p>Establish a theory of probable cause</p> <ul style="list-style-type: none"> ○ Question the obvious ○ Consider multiple approaches (e.g. divide and conquer) <p>Test the theory to determine the cause</p> <ul style="list-style-type: none"> ○ Once the theory is confirmed confirmed root cause), determine the next steps to resolve the problem ○ If the theory is not confirmed, establish a new theory or escalate <p>Establish a plan of action to resolve the problem and identify potential effects</p> <p>Implement the solution or escalate as necessary</p> <p>Verify full system functionality and, if applicable, implement preventive measures</p> <p>Document findings/lessons learned, actions, and outcomes</p>	
2.0	Infrastructure	
2.1	<p>Classify common types of input/output device interfaces.</p> <p>Networking</p> <ul style="list-style-type: none"> ○ Wired (Telephone connector (RJ-11); Ethernet connector (RJ-45)) ○ Wireless (Bluetooth; NFC) <p>Peripheral device</p> <ul style="list-style-type: none"> ○ USB ○ FireWire ○ Thunderbolt ○ Bluetooth ○ RF <p>Graphic device</p> <ul style="list-style-type: none"> ○ VGA ○ HDMI ○ DVI ○ DisplayPort ○ Mini DisplayPort 	<p>3.4</p> <p>6.2, 6.3</p>
2.2	<p>Given a scenario, set up and install common peripheral devices to a laptop/PC.</p> <p>Devices</p> <ul style="list-style-type: none"> ○ Printer ○ Scanner 	<p>3.4, 3.5</p>

	<ul style="list-style-type: none"> ○ Keyboard ○ Mouse ○ Camera ○ External hard drive ○ Speakers ○ Display <p>Installation types</p> <ul style="list-style-type: none"> ○ Plug-and-play vs. driver installation ○ Other required steps ○ IP-based peripherals ○ Web-based configuration steps 	
2.3	<p>Explain the purpose of common internal computing components.</p> <p>Motherboard/system board Firmware/BIOS RAM CPU</p> <ul style="list-style-type: none"> ○ ARM (Mobile phone; Tablet) ○ 32-bit (Laptop; Workstation; Server) ○ 64-bit (Laptop; Workstation; Server) <p>Storage</p> <ul style="list-style-type: none"> ○ Hard drive ○ SSD <p>GPU Cooling NIC</p> <ul style="list-style-type: none"> ○ Wired vs. wireless ○ On-board vs. add-on card 	3.3, 3.5 4.3
2.4	<p>Compare and contrast common Internet service types.</p> <p>Fiber optic Cable DSL Wireless</p> <ul style="list-style-type: none"> ○ Radio frequency ○ Satellite ○ Cellular 	5.2 6.4

2.5	<p>Compare and contrast storage types.</p> <p>Volatile vs. non-volatile</p> <p>Local storage types</p> <ul style="list-style-type: none"> ○ RAM ○ Hard drive (Solid state vs. spinning disk) ○ Optical ○ Flash drive <p>Local network storage types</p> <ul style="list-style-type: none"> ○ NAS ○ File server <p>Cloud storage service</p>	<p>3.5</p> <p>5.4</p> <p>6.2</p> <p>10.6</p>
2.6	<p>Compare and contrast common computing devices and their purposes.</p> <p>Mobile phones</p> <p>Tablets</p> <p>Laptops</p> <p>Workstations</p> <p>Servers</p> <p>Gaming consoles</p> <p>IoT</p> <ul style="list-style-type: none"> ○ Home appliances ○ Home automation devices (Thermostats; Security systems) ○ Modern cars ○ IP cameras ○ Streaming media devices ○ Medical devices 	<p>3.2</p> <p>4.2</p> <p>5.2, 5.6, 5.7</p> <p>6.2</p>
2.7	<p>Explain basic networking concepts.</p> <p>Basics of network communication</p> <ul style="list-style-type: none"> ○ Basics of packet transmission ○ DNS (URL-to-IP translation) ○ LAN vs. WAN <p>Device addresses</p> <ul style="list-style-type: none"> ○ IP address ○ MAC address <p>Basic protocols</p> <ul style="list-style-type: none"> ○ HTTP/S 	<p>5.2</p> <p>6.2, 6.4, 6.5</p>

	<ul style="list-style-type: none"> ○ POP3 ○ IMAP ○ SMTP <p>Devices</p> <ul style="list-style-type: none"> ○ Modem ○ Router ○ Switch ○ Access point ○ Firewall 	
2.8	<p>Given a scenario, install, configure and secure a basic wireless network.</p> <p>802.11a/b/g/n/ac</p> <ul style="list-style-type: none"> ○ Older vs. newer standards ○ Speed limitations ○ Interference and attenuation factors <p>Best practices</p> <ul style="list-style-type: none"> ○ Change SSID ○ Change default password ○ Encrypted vs. unencrypted (Open: Captive portal; WEP; WPA; WPA2) 	6.3
3.0	Applications and Software	
3.1	<p>Explain the purpose of operating systems.</p> <p>Interface between applications and hardware</p> <p>Disk management</p> <p>Process management/scheduling</p> <ul style="list-style-type: none"> ○ Kill process/end task <p>Application management</p> <p>Memory management</p> <p>Device management</p> <p>Access control/protection</p> <p>Types of OS</p> <ul style="list-style-type: none"> ○ Mobile device OS ○ Workstation OS ○ Server OS ○ Embedded OS (Firmware) ○ Hypervisor (Type 1) 	<p>3.5</p> <p>4.2, 4.3, 4.5, 4.6,</p> <p>4.7</p>

3.2	<p>Compare and contrast components of an operating system.</p> <ul style="list-style-type: none"> File systems and features <ul style="list-style-type: none"> ○ File systems (NTFS; FAT32; HFS; Ext4) Features <ul style="list-style-type: none"> ○ Compression ○ Encryption ○ Permissions ○ Journaling ○ Limitations ○ Naming rules File management <ul style="list-style-type: none"> ○ Folders/directories ○ File types and extensions ○ Permissions Services Processes Drivers Utilities <ul style="list-style-type: none"> ○ Task scheduling Interfaces <ul style="list-style-type: none"> ○ Console/command line ○ GUI 	<p>2.4 3.5 4.2, 4.3, 4.4, 4.6, 4.7 6.6</p>
3.3	<p>Explain the purpose and proper use of software.</p> <ul style="list-style-type: none"> Productivity software <ul style="list-style-type: none"> ○ Word processing software ○ Spreadsheet software ○ Presentation software ○ Web browser ○ Visual diagramming software Collaboration software <ul style="list-style-type: none"> ○ Email client ○ Conferencing software ○ Instant messaging software ○ Online workspace ○ Document sharing Business software <ul style="list-style-type: none"> ○ Database software ○ Project management software 	<p>4.5, 4.6 5.2, 5.3, 5.4, 5.6, 5.8 6.5 9.2</p>

	<ul style="list-style-type: none"> ○ Business-specific applications ○ Accounting software 	
3.4	<p>Explain methods of application architecture and delivery models.</p> <p>Application delivery methods</p> <ul style="list-style-type: none"> ○ Locally installed (Network not required; Application exists locally; Files saved locally) ○ Local network hosted (Network required; Internet access not required) ○ Cloud hosted (Internet access required; Service required; Files saved in the cloud) <p>Application architecture models</p> <ul style="list-style-type: none"> ○ One tier ○ Two tier ○ Three tier ○ n-tier 	<p>5.4</p> <p>6.6</p>
3.5	<p>Given a scenario, configure and use web browsers.</p> <p>Caching/clearing cache</p> <p>Deactivate client-side scripting</p> <p>Browser add-ons/extensions</p> <ul style="list-style-type: none"> ○ Add ○ Remove ○ Enable/disable <p>Private browsing</p> <p>Proxy settings</p> <p>Certificates</p> <ul style="list-style-type: none"> ○ Valid ○ Invalid <p>Popup blockers</p> <p>Script blockers</p> <p>Compatible browser for application(s)</p>	<p>5.3, 5.8</p>
3.6	<p>Compare and contrast general application concepts and uses.</p> <p>Single-platform software</p> <p>Cross-platform software</p> <ul style="list-style-type: none"> ○ Compatibility concerns <p>Licensing</p> <ul style="list-style-type: none"> ○ Single use 	<p>6.6</p>

	<ul style="list-style-type: none"> ○ Group use/site license ○ Concurrent license ○ Open source vs. proprietary ○ Subscription vs. one-time purchase ○ Product keys and serial numbers <p>Software installation best practices</p> <ul style="list-style-type: none"> ○ Reading instructions ○ Reading agreements ○ Advanced options 	
4.0	Software Development Concepts	
4.1	<p>Compare and contrast programming language categories.</p> <p>Interpreted</p> <ul style="list-style-type: none"> ○ Scripting languages ○ Scripted languages ○ Markup languages <p>Compiled programming languages</p> <p>Query languages</p> <p>Assembly language</p>	<p>7.3, 7.4</p> <p>8.2, 8.4, 8.5</p>
4.2	<p>Given a scenario, use programming organizational techniques and interpret logic.</p> <p>Organizational techniques</p> <ul style="list-style-type: none"> ○ Pseudocode concepts ○ Flow-chart concepts (Sequence) <p>Logic components</p> <ul style="list-style-type: none"> ○ Branching ○ Looping 	<p>8.2, 8.3</p>
4.3	<p>Explain the purpose and use of programming concepts.</p> <p>Identifiers</p> <ul style="list-style-type: none"> ○ Variables ○ Constants <p>Containers</p> <ul style="list-style-type: none"> ○ Arrays ○ Vectors 	<p>8.2, 8.3, 8.4</p>

	<p>Functions</p> <p>Objects</p> <ul style="list-style-type: none"> ○ Properties ○ Attributes ○ Methods 	
5.0	Database Fundamentals	
5.1	<p>Explain database concepts and the purpose of a database.</p> <p>Usage of database</p> <ul style="list-style-type: none"> ○ Create ○ Import/input ○ Query ○ Reports <p>Flat file vs. database</p> <ul style="list-style-type: none"> ○ Multiple concurrent users ○ Scalability ○ Speed ○ Variety of data <p>Records</p> <p>Storage</p> <ul style="list-style-type: none"> ○ Data persistence 	7.2, 7.3, 7.4, 7.5
5.2	<p>Compare and contrast various database structures.</p> <p>Structured vs. semi-structured vs. non-structured</p> <p>Relational databases</p> <ul style="list-style-type: none"> ○ Schema ○ Tables (Rows/records; Fields/columns - Primary key, Foreign key; Constraints) <p>Non-relational databases</p> <ul style="list-style-type: none"> ○ Key/value databases ○ Document databases 	7.3, 7.5
5.3	<p>Summarize methods used to interface with databases.</p> <p>Relational methods</p> <ul style="list-style-type: none"> ○ Data manipulation (Select; Insert; Delete; Update) ○ Data definition (Create; Alter; Drop; Permissions) 	7.2, 7.3, 7.4

	Database access methods <ul style="list-style-type: none"> ○ Direct/manual access ○ Programmatic access ○ User interface/utility access ○ Query/report builders Export/import <ul style="list-style-type: none"> ○ Database dump ○ Backup 	
6.0	Security	
6.1	Summarize confidentiality, integrity and availability concerns. Confidentiality concerns <ul style="list-style-type: none"> ○ Snooping ○ Eavesdropping ○ Wiretapping ○ Social engineering ○ Dumpster diving Integrity concerns <ul style="list-style-type: none"> ○ Man-in-the-middle ○ Replay attack ○ Impersonation ○ Unauthorized information alteration Availability concerns <ul style="list-style-type: none"> ○ Denial of service ○ Power outage ○ Hardware failure ○ Destruction ○ Service outage 	10.2
6.2	Explain methods to secure devices and best practices. Securing devices (mobile/workstation) <ul style="list-style-type: none"> ○ Antivirus/Anti-malware ○ Host firewall ○ Changing default passwords ○ Enabling passwords ○ Safe browsing practices ○ Patching/updates 	6.6 10.5

	<p>Device use best practices</p> <ul style="list-style-type: none"> ○ Software sources (Validating legitimate sources; Researching legitimate sources; OEM websites vs. third-party websites) ○ Removal of unwanted software ○ Removal of unnecessary software ○ Removal of malicious software 	
6.3	<p>Summarize behavioral security concepts.</p> <p>Expectations of privacy when using:</p> <ul style="list-style-type: none"> ○ The Internet (Social networking sites; Email; File sharing; Instant messaging) ○ Mobile applications ○ Desktop software ○ Business software ○ Corporate network <p>Written policies and procedures</p> <p>Handling of confidential information</p> <ul style="list-style-type: none"> ○ Passwords ○ Personal information ○ Customer information ○ Company confidential information 	<p>5.5 10.2, 10.6</p>
6.4	<p>Compare and contrast authentication, authorization, accounting and non-repudiation concepts.</p> <p>Authentication</p> <ul style="list-style-type: none"> ○ Single factor ○ Multifactor ○ Examples of factors (Password; PIN; One-time password; Software token; Hardware token; Biometrics; Specific location; Security questions) ○ Single sign-on <p>Authorization</p> <ul style="list-style-type: none"> ○ Permissions ○ Least privilege model ○ Role-based access (User account types) ○ Rule-based access ○ Mandatory access controls ○ Discretionary access controls <p>Accounting</p> <ul style="list-style-type: none"> ○ Logs ○ Tracking ○ Web browser history 	<p>10.3</p>

	Non-repudiation <ul style="list-style-type: none"> ○ Video ○ Biometrics ○ Signature ○ Receipt 	
6.5	Explain password best practices. Password length Password complexity Password history Password expiration Password reuse across sites Password managers Password reset process	10.5
6.6	Explain common uses of encryption. Plain text vs. cipher text Data at rest <ul style="list-style-type: none"> ○ File level ○ Disk level Data in transit <ul style="list-style-type: none"> ○ Email ○ HTTPS ○ VPN ○ Mobile application 	6.5, 6.6 10.4, 10.5
6.7	Explain business continuity concepts. Fault tolerance <ul style="list-style-type: none"> ○ Replication ○ Redundancy (Data; Network; Power) ○ Backup considerations (Data - File backups, Critical data, Database, OS backups; Location - Stored Locally, Cloud Storage, On-site vs. off-site) ○ Contingency plan Disaster recovery <ul style="list-style-type: none"> ○ Data restoration ○ Prioritization 	10.6

	○ Restoring access	
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