

Module 1 – Concepts of Information and Communication Technology (ICT)

The following is the Syllabus for Module 1, *Concepts of Information and Communication Technology (ICT)*, which provides the basis for the theory-based test in this module.

Module Goals

Module 1 *Concepts of Information and Communication Technology (ICT)* requires the candidate to understand the main concepts of ICT at a general level, and to know about the different parts of a computer.

The candidate shall be able to:

- Understand what hardware is, know about factors that affect computer performance and know about peripheral devices.
- Understand what software is and give examples of common applications software and operating system software.
- Understand how information networks are used within computing, and be aware of the different options to connect to the Internet.
- Understand what Information and Communication Technology (ICT) is and give examples of its practical applications in everyday life.
- Understand health and safety and environmental issues in relation to using computers.
- Recognize important security issues associated with using computers.
- Recognize important legal issues in relation to copyright and data protection associated with using computers.

CATEGORY	KNOWLEDGE AREA	REF.	KNOWLEDGE ITEM
1.1 Hardware	1.1.1 Concepts	1.1.1.1	Understand the term hardware.
		1.1.1.2	Understand what a personal computer is. Distinguish between desktop, laptop (notebook), tablet PC in terms of typical users.
		1.1.1.3	Identify common handheld portable digital devices like: personal digital assistant (PDA), mobile phone, smartphone, multimedia player and know their main features.
		1.1.1.4	Know the main parts of a computer like: central processing unit (CPU), types of memory, hard disk, common input and output devices.
		1.1.1.5	Identify common input/output ports like: USB, serial, parallel, network port, FireWire.

CATEGORY	KNOWLEDGE AREA	REF.	KNOWLEDGE ITEM
	1.1.2 <i>Computer Performance</i>	1.1.2.1	Know some of the factors that impact on a computer's performance like: CPU speed, RAM size, graphics card processor and memory, the number of applications running.
		1.1.2.2	Know that the speed (operating frequency) of the CPU is measured in megahertz (MHz) or gigahertz (GHz).
	1.1.3 <i>Memory and Storage</i>	1.1.3.1	Know what computer memory is: RAM (random-access memory), ROM (read-only memory) and distinguish between them.
		1.1.3.2	Know storage capacity measurements: bit, byte, KB, MB, GB, TB.
		1.1.3.3	Know the main types of storage media like: internal hard disk, external hard disk, network drive, CD, DVD, USB flash drive, memory card, online file storage.
	1.1.4 <i>Input, Output Devices</i>	1.1.4.1	Identify some of the main input devices like: mouse, keyboard, trackball, scanner, touchpad, stylus, joystick, web camera (webcam), digital camera, microphone.
		1.1.4.2	Know some of the main output devices like: screens/monitors, printers, speakers, headphones.
		1.1.4.3	Understand some devices are both input and output devices like: touchscreens.
1.2 Software	1.2.1 <i>Concepts</i>	1.2.1.1	Understand the term software.
		1.2.1.2	Understand what an operating system is and name some common operating systems.
		1.2.1.3	Identify and know the uses of some common software applications: word processing, spreadsheet, database, presentation, e-mail, web browsing, photo editing, computer games.
		1.2.1.4	Distinguish between operating systems software and applications software.
		1.2.1.5	Know some options available for enhancing accessibility like: voice recognition software, screen reader, screen magnifier, on-screen keyboard.

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1.3 Networks	<i>1.3.1 Network Types</i>	1.3.1.1	Understand the terms local area network (LAN), wireless local area network (WLAN), wide area network (WAN).
		1.3.1.2	Understand the term client/server.
		1.3.1.3	Understand what the Internet is and know some of its main uses.
		1.3.1.4	Understand what an intranet, extranet is.
	<i>1.3.2 Data Transfer</i>	1.3.2.1	Understand the concepts of downloading from, uploading to a network.
		1.3.2.2	Understand what transfer rate means. Understand how it is measured: bits per second (bps), kilobits per second (kbps), megabits per second (mbps).
		1.3.2.3	Know about different Internet connection services: dial-up, broadband.
		1.3.2.4	Know about different options for connecting to the Internet like: phone line, mobile phone, cable, wireless, satellite.
		1.3.2.5	Understand some of the characteristics of broadband: always on, typically a flat fee, high speed, higher risk of intruder attack.
		1.4 ICT in Everyday Life	<i>1.4.1 Electronic World</i>
1.4.1.2	Know about different Internet services for consumers like: e-commerce, e-banking, e-government.		
1.4.1.3	Understand the term e-learning. Know some of its features like: flexible learning time, flexible learning location, multimedia learning experience, cost effectiveness.		
1.4.1.4	Understand the term teleworking. Know some of the advantages of teleworking like: reduced or no commuting time, greater ability to focus on one task, flexible schedules, reduced company space requirements. Know some disadvantages of teleworking like: lack of human contact, less emphasis on teamwork.		

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	<i>1.4.2 Communication</i>	1.4.2.1	Understand the term electronic mail (e-mail).
		1.4.2.2	Understand the term instant messaging (IM).
		1.4.2.3	Understand the term Voice over Internet Protocol (VoIP).
		1.4.2.4	Understand the term Really Simple Syndication (RSS) feed.
		1.4.2.5	Understand the term web log (blog).
		1.4.2.6	Understand the term podcast.
	<i>1.4.3 Virtual Communities</i>	1.4.3.1	Understand the concept of an online (virtual) community. Recognize examples like: social networking websites, Internet forums, chat rooms, online computer games.
		1.4.3.2	Know ways that users can publish and share content online: web log (blog), podcast, photos, video and audio clips.
		1.4.3.3	Know the importance of taking precautions when using online communities: make your profile private, limit the amount of personal information you post, be aware that posted information is publicly available, be wary of strangers.
	<i>1.4.4 Health</i>	1.4.4.1	Understand the term ergonomics.
		1.4.4.2	Recognize that lighting is a health factor in computer use. Be aware that use of artificial light, amount of light, direction of light are all important considerations.
		1.4.4.3	Understand that correct positioning of the computer, desk and seat can help maintain a good posture.
		1.4.4.4	Recognize ways to help ensure a user's wellbeing while using a computer like: take regular stretches, have breaks, use eye relaxation techniques.
	<i>1.4.5 Environment</i>	1.4.5.1	Know about the option of recycling computer components, printer cartridges and paper.

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		1.4.5.2	Know about computer energy saving options: applying settings to automatically turn off the screen/monitor, to automatically put the computer to sleep, switching off the computer.
1.5 Security	<i>1.5.1 Identity/Authentication</i>	1.5.1.1	Understand that for security reasons a user name (ID) and password are needed for users to identify themselves when logging on to a computer.
		1.5.1.2	Know about good password policies like: not sharing passwords, changing them regularly, adequate password length, adequate letter and number mix.
	<i>1.5.2 Data Security</i>	1.5.2.1	Understand the importance of having an off-site backup copy of files.
		1.5.2.2	Understand what a firewall is.
		1.5.2.3	Know ways to prevent data theft like: using a user name and password, locking computer and hardware using a security cable.
	<i>1.5.3 Viruses</i>	1.5.3.1	Understand the term computer virus.
		1.5.3.2	Be aware how viruses can enter a computer system.
		1.5.3.3	Know how to protect against viruses and the importance of updating anti-virus software regularly.
	1.6 Law	<i>1.6.1 Copyright</i>	1.6.1.1
1.6.1.2			Know how to recognize licensed software: by checking product ID, product registration, by viewing the software licence.
1.6.1.3			Understand the term end-user license agreement.
1.6.1.4			Understand the terms shareware, freeware, open source.
<i>1.6.2 Data Protection</i>		1.6.2.1	Identify the main purposes of data protection legislation or conventions: to protect the rights of the data subject, to set out the responsibilities of the data controller.
		1.6.2.2	Identify the main data protection rights for a data subject in your country.

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		1.6.2.3	Identify the main data protection responsibilities for a data controller in your country.