



EUCIP - IT Administrator

Module 2 – Operating Systems

Version 2.0

Module 2 Goals

Module 2 Module 2, **Operating Systems**, requires the candidate to be familiar with the procedure of installing and updating the most common operating systems and applications. The candidate should be able to repair software problems that may occur and to help and support the users in their everyday problems. Also, he/she should know and handle the system tools, which are included in most operating systems and diagnose any problems at a PC system, in order to repair the software problems.

Category	Knowledge Area	Ref.	Knowledge Item
2.1 Operating System Fundamentals	2.1.1 Basic function	2.1.1.1	Understand the function of an operating system. Also know its use.
		2.1.1.2	Be aware of main types of OS: Batch, Time sharing, Real Time
		2.1.1.3	Be aware of main concepts: multitask, multiuser, processes, threads, context, context switch and protection
		2.1.1.4	Know the most common operating systems for the PC family. Also know the basic differences between them.
		2.1.1.5	Be aware of the most common operating systems capabilities and limitations. Also know the compatibility between them.
2.2. Install Operating System	2.2.1 Installation process	2.2.1.1	Know the different ways to install an operating system, such as installation from CD-ROM, network etc
		2.2.1.2	Keep up to date with the minimum requirements of common operating systems installation.
	2.2.2 Dual operating system	2.2.2.1	Be able to install two or more operating systems in a PC.
		2.2.2.2	Understand the start process when dual operating systems are installed. Also know which files are used during startup and their functions.
		2.2.2.3	Be aware of the term Boot Menu and when it is used. Also, be able to view and change boot menu settings.
2.3 Operating System Organization	2.3.1 Boot Process	2.3.1.1	Know which files are being used during the boot up process. Also know their function.
		2.3.1.2	Know from which directory the boot files are loaded.
		2.3.1.3	Know which boot files should be in a start up disk and their functions.
		2.3.1.4	Know how to create a start up disk.

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2.4 Using, configure and upgrade the operating system	2.4.1 Operating system interface	2.4.1.1	Understand the operating systems interface. Know the term API and its meanings.
		2.4.1.2	Be able to use the operating systems interface. Know how to create and remove all kinds of shortcuts, change icons, etc.
		2.4.1.3	Be able to use the available accessories. Also be able to install and remove them.
	2.4.2 Configure the environment	2.4.2.1	Know how to configure and change monitor settings, such as Colours, Resolution, and Refresh Rate. Also know how to change monitor and graphic adapter drivers.
		2.4.2.2	Know how to configure the desktop, using the available utilities, to create a personal environment. Change background, themes, taskbar settings etc.
		2.4.2.3	Know how to configure and change mouse and keyboard settings.
		2.4.2.4	Know how to configure and change Multimedia.
		2.4.2.5	Know how to configure and change Regional settings
		2.4.2.6	Know how to install and remove fonts.
		2.4.2.7	Know how to add, modify and remove a printer. Also, know how to set a printer as default if possible, check a printer's status and upgrade its drivers.
		2.4.2.8	Know how the operating system organizes its folders/directories. Know where system files, application files, temporary files, internet files etc are stored.
	2.4.3 Configuration files	2.4.3.1	Be aware of the files, which contain the configuration information. Also know their name and location.
		2.4.3.2	Be able to use a utility to check and modify the configuration files.
		2.4.3.3	Know how to protect the configuration files. Also know how to take backup and restore them.
	2.4.4 Upgrading	2.4.4.1	Be able to upgrade to a newer version of the operating system.
		2.4.4.2	Understand the importance of keeping the system up to date. Know how to keep up with OS patches and updates.

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		2.4.4.3	Know how to configure the system to keep up automatically with patches and updates.
2.5 Disk management	2.5.1 Managing files and folders	2.5.1.1	Be aware of the available disk administration utility. Also be able to use it.
		2.5.1.2	Be aware of the available partitioning program
		2.5.1.3	Know how to create, format and activate a partition.
		2.5.1.4	Know what a cluster is and which factors determine its size.
	2.5.2 File system	2.5.2.1	Know the most common file systems your operating system can use.
		2.5.2.2	Know the main features and capabilities of main different File systems, and be able to choose the appropriate file system for an operating system.
		2.5.2.3	Know how to convert from a file system to another and if and when it is useful.
		2.5.2.4	Know the file and directory attributes and their function.
	2.5.3 Disk cache	2.5.3.1	Know what Disk cache is and how to manage it if it is possible
2.6 Disk maintenance	2.6.1 Optimise disk performance	2.6.1.1	Be able to use an available utility to test the disks. Also, be able to repair any problem.
		2.6.1.2	Know what fragmentation is and why it occurs.
		2.6.1.3	Know what defragmentation is. Also be able to use a utility to perform defragmentation if needed.
		2.6.1.4	Be able to use an available utility to remove unwanted files from a disk if needed. Also know what kind of files these may be.
2.7 Memory	2.7.1 Memory Management	2.7.1.1	Know the maximum memory the operating system can manage.
		2.7.1.2	Know the available utility that monitors the memory, and its functions.

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	2.7.2 Virtual memory	2.7.2.1	Be aware of the term Virtual memory, its use, and how it affects system performances. Know memory hierarchy. Be aware of memory thrashing.
		2.7.2.2	Know where virtual memory will be put, its size and restrictions.
2.8 Install new Hardware and Software	2.8.1 Hardware installation	2.8.1.1	Be able to check the available installed hardware and its configuration. Also be able to create the necessary documentation.
		2.8.1.2	Be aware of the terms device, driver and their meanings. Also know the role played by them.
		2.8.1.3	Be able to check the used resources, such as I/O addresses, IRQs, DMAs.
		2.8.1.4	Be able to check for resource conflict. Also, know what to do if resource conflict occurs.
		2.8.1.5	Be able to install, remove and update hardware device drivers, using different sources.
	2.8.2 Plug and Play	2.8.2.1	Know what the term Plug and Play means and understand its function. Also be aware of the requirements for PnP.
		2.8.2.2	Know how to install a PnP device. Also know how to install non-PnP devices.
	2.8.3 Software installation	2.8.3.1	Be able to install, upgrade and uninstall application software.
2.9 External Communication	2.9.1 Internet connection	2.9.1.1	Know how to install and use a modem. Also, know how to update modem drivers.
	2.9.2 Network	2.9.2.1	Know how to install a Network Interface Card, NIC. Also, know how to update NIC drivers
		2.9.2.2	Be able to configure a NIC.
		2.9.2.3	Know how to install and configure a network protocol, such as TCP/IP.
		2.9.2.4	Be aware of the term 'personal firewall'. Also be able to configure a personal firewall..
	2.9.3 Internet browser	2.9.3.1	Know how to install, configure and use Internet browser software.
		2.9.3.2	Be able to check and change general settings, such as delete temporary internet files, clean history etc
		2.9.3.3	Be able to check for and change the default browser.
	2.9.4 Mail software	2.9.4.1	Be able to install and use mail software.

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		2.9.4.2	Be able to configure the mail software, such as POP3, IMAP, SMTP, News server etc
2.10 Checking performance and monitoring events	2.10.1 Performance	2.10.1.1	Be able to use the available utility to monitor the hardware and software performance.
		2.10.1.2	Be able to select single device or task and monitor their performance
		2.10.1.3	Be able to monitor the available performance status, such as total and free memory, virtual memory in use, available resources, etc
		2.10.1.4	Be able to monitor the active tasks and processes
	2.10.2 Events	2.10.2.1	Be able to monitor the events, system log, using the available utility
2.11 Diagnosing and Troubleshooting	2.11.1 Diagnosing and Troubleshooting	2.11.1.1	Be able to use the available diagnostic programs to analyse the current hardware and software settings.
		2.11.1.2	Recognize the most common error codes
		2.11.1.3	Diagnose and know what to do if the operating system don't start
		2.11.1.4	Be able to diagnose and repair problems during the start up process.
		2.11.1.5	Be able to diagnose and repair communication problems, such as modem and internet communication problems.
		2.11.1.6	Diagnose and repair configuration files problems.
		2.11.1.7	Diagnose and repair local printing problems.
		2.11.1.8	Be able to start a computer in safe mode
		2.11.1.9	Be able to make and use a repair disk, emergency disk, for recovery. Also, know the way the disk works.