ICAU1128B: Operate a Personal Computer

Student Handbook
### Modification History – Competency Handbooks

<table>
<thead>
<tr>
<th>Version</th>
<th>Date of Release</th>
<th>Authorisation</th>
<th>Comments</th>
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<tr>
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<td>Primary Release</td>
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**Forms Control:**

All documents related to the delivery or assessment of ICA20105: Cert II in Information Technology will have a version number displayed in the footer of the document. This Modification History page will appear after each title page of a handbook to ensure that the materials involved in the delivery and assessment of the certificate remain in a constant state of ongoing review and improvement. Comments on changes will only show sufficient detail to enable a user to identify the nature and location of the change. Documents will be reviewed at least on an annual basis at the official internal review and fellow instructors and industry representatives will be consulted throughout the year in informal discussion.
UNIT CODE: ICAU1128B
UNIT TITLE: Operate a personal computer

Description
This unit defines the competency required to operate a personal computer, including starting the PC, logging in, using and understanding desktop icons and their links to underlying programs, navigating a directory structure, saving work, printing and closing down the PC.

Elements of Competency

ICAU1128B/01 Start the computer
1.1 Check peripheral device connections for correct position
1.2 Switch on power at both the power point and computer

ICAU1128B/02 Access basic system information
2.1 Insert user name and password as prompted and note access, privacy, security and related conditions of use displayed on introductory screens
2.2 Navigate through the operating system to access system information to identify system configuration and application versions in operation
2.3 Use online help functions as required

ICAU1128B/03 Navigate and manipulate desktop environment
3.1 Create and customise desktop icons
3.2 Select, open and close desktop icons to access application programs
3.3 Manipulate application windows and return desktop to original condition

ICAU1128B/04 Organise basic directory/folder structure and files
4.1 Create and name directories and subdirectories
4.2 Identify attributes of directories
4.3 Move subdirectories between directories
4.4 Rename directories as required
4.5 Access directories and subdirectories via different paths

ICAU1128B/05 Organise files for user and/or organisation requirements
5.1 Use system browser to search drives for specific files
5.2 Access the most commonly used types of files in the directories
5.3 Select, open and rename groups of files as required
5.4 Move files between directories
5.5 Copy files to disk
5.6 Restore deleted files as necessary
5.7 Erase and format disks as necessary

ICAU1128B/06 Print information
6.1 Add a printer if required and ensure correct printer settings
6.2 Change the default printer if appropriate
6.3 Print information form a installed printer
6.4 View and delete progress of print jobs as required

ICAU1128B/07 Shut down computer
7.1 Save any work to be retained and close all open application programs correctly
7.2 Shut down computer correctly
Peripheral Devices and Connections

Introduction

A peripheral device is something that is not essential to the operation of a computer, such as a CD-ROM drive or a printer (as opposed to an essential component like the memory or the processor). Peripherals are classified as either input devices or output devices. This means that they either input data into the computer (such as a keyboard or mouse) or they output data to the user (such as a printer or screen).

The term 'input/output' (I/O) is used to describe any program, operation or device that transfers data to or from a computer, and to or from a peripheral device. Every transfer is an output form one device and then an input into another device.

Connecting Peripheral Devices

Peripheral devices are usually connected to the computer using cables that are plugged into a series of sockets, or ports, at the back or on the front of the system unit box, depending on whether you have an upright box (tower style) or a flat box.

Ports

A port is a socket that is used to connect the system unit to a peripheral device. They are usually found on the back of the system unit. Several types of ports are needed to fit the plugs of the various peripheral devices. The computer needs protocols (standard data handling rules) to allow the peripherals to work properly. The mouse and the keyboard sometimes have their own ports because they use their own protocol.

Parallel Ports

A parallel port allows you to connect peripheral devices with a parallel cable. A parallel cable is made up of 25 wires that send information simultaneously. These cables are capable of sending and receiving large amounts of data, and are most commonly used to connect printers, scanners, and external drives like Zip drives. This technology, however, will slowly be phased out due to the ever-increasing emergence of the USB port.

USB Ports

USB stands for Universal Serial Bus. USB is a plug and play interface between your computer and peripheral devices. These days, most computers and laptops come with at least two USB ports. USB ports let you connect anything from a mouse to a printer to your computer quickly and easily. Operating systems support USB, so installing the device drivers is quick and easy (and sometimes not even required!). USB devices are also hot swappable or hot pluggable. This means that you...
can unplug a USB device from one port, and then re-plug the device into another USB port without turning the computer off.

Connecting a USB device to a computer is simple – you find the USB port on the back or front of your machine and plug the USB connector into it. If it’s a new device, the operating system may detect it and ask for the driver disk. If the device has already been installed, the computer activates it and starts communicating with it. USB devices, as previously stated, can be connected and disconnected at any time.

Activity 1

Create a new Word document and complete the following tasks:

1. Create a table and sort the following peripherals from Input or Output or Both. If you can think of others to add to the list, then add those too.

<table>
<thead>
<tr>
<th>Peripheral</th>
<th>Input/Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keyboard</td>
<td></td>
</tr>
<tr>
<td>Mouse</td>
<td></td>
</tr>
<tr>
<td>Printer</td>
<td></td>
</tr>
<tr>
<td>Monitor</td>
<td></td>
</tr>
<tr>
<td>External Zip Drive</td>
<td></td>
</tr>
<tr>
<td>Scanner</td>
<td></td>
</tr>
<tr>
<td>External Modem</td>
<td></td>
</tr>
<tr>
<td>Joystick</td>
<td></td>
</tr>
<tr>
<td>Light Pen</td>
<td></td>
</tr>
<tr>
<td>Digital Camera</td>
<td></td>
</tr>
<tr>
<td>Plotter</td>
<td></td>
</tr>
<tr>
<td>USB Memory Stick</td>
<td></td>
</tr>
</tbody>
</table>

2. Write definitions for the following terms:

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peripheral</td>
<td></td>
</tr>
<tr>
<td>Port</td>
<td></td>
</tr>
<tr>
<td>Protocol</td>
<td></td>
</tr>
<tr>
<td>Parallel Port</td>
<td></td>
</tr>
<tr>
<td>USB Port</td>
<td></td>
</tr>
<tr>
<td>Hot Pluggable</td>
<td></td>
</tr>
</tbody>
</table>

3. Using the Internet, research the terms “FireWire” and “SCSI”. Write a paragraph on each of these protocols explaining what they are and what they are used for. Do not forget to reference your sources.

4. Using a digital camera (you can borrow one from your teacher) take a picture of the ports at the back (or front) of your PC. Import this into your document and, using the drawing toolbar, label the different ports.

Accessing Basic System Information

Boot Process

To ‘boot’ means to start the operating system. Booting is the process whereby the computer brings itself up to an operable state without human intervention (apart from turning the computer on). A small program that is permanently stored on the hard disk runs automatically to load the operating system into the main memory (sometimes called the system RAM) so that you can start using it. The operating system can be booted again (‘rebooted’).

There are two main ways of booting a computer system:

- **Hard boot** (also known as cold boot): when the computer is turned off or has no power going to it and you start it up using the power switch (or button);
Soft boot (restart): when the reset button is pressed or the CTRL, ALT and DEL keys are used together.

The operating system is booted automatically when you turn on your computer or restart your system. You can interrupt the boot sequence and begin an interactive session if you need to redefine system keywords (parameters) like the amount of available physical memory. Security measures at school prevent you from doing this on school computers.

Logging on to a computer network

To log on, you enter your username and password. At school, users have to log in individually to use a computer. The network administrator will have assigned a username and password to each student and teacher. This needs to be checked (authenticated or verified) before access is granted.

Logging off from a computer network

When you have finished your session on the computer, you need to log off so that no-one else can access your files. This can be done via the Start menu, or by clicking CTRL, ALT, DEL. You may choose to select Shutdown at the end of the day, or Logout or Restart if another person is going to be using the machine after you.

Computer Security

Firewalls

A firewall is a software or hardware barrier, designed to keep other computers from accessing network resources on a particular network or computer. Firewalls offer protection in two ways. They protect your system from being accessed (hacked into) by outside users through the Internet, and they can also be used to prevent people on your network from visiting unauthorised websites.

A software firewall can be installed on the home computer you use to access the Internet. This computer is a gateway because it is the only point of access between your home network and the Internet.

Encryption

The growth of the Internet and e-business has changed the way we live and work. We need to make sure the information we send via the Internet is safe and secure. Some private information we might send across the Internet, but we wouldn’t want unauthorised people to access, includes:

- Credit-card information;
- Private correspondence (emails);
- Personal details;
- Company information;
- Bank account information.

Encryption is a popular way to keep information safe when it is sent and retrieved via the Internet. Encryption encodes data so that only the computer or person with the ‘key’ can decode it.
Activity 2

Create a new Word document and complete the following tasks:

1. What is the difference between a hard boot and a soft boot?

2. Press CTRL, ALT, DEL on your computer. Do a screen capture and paste into your document to show the different options available to us at school when wanting to log out.

3. Is it possible to access system information during the boot process?

4. Using the online help function, find out how to gain information on system configuration and application versions in operation. Now find out these details on our operating system and list here.

5. Using the Internet, research Bio-security measures that can be taken to secure your system. What do these measures include? Are they costly? How secure are they? Are they widely used?

6. View a video from your teacher on computer security. Copy the video worksheet from shared into your drive and type in the relevant answers.

Navigate and Manipulate Desktop Environment

Customisation involves configuring software to a client's specifications, using available menu options. Operating system software and application software can be customised to suit the individual needs of the user. The desktop environment (the main screen on the computer) can be customised for each user.

Creating and customising desktop icons

Changing the desktop theme

Changing the desktop theme, allows the user to change the appearance of the desktop. To do this, right click on the desktop and select properties. The adjoining window will appear:

This window allows the user to change the theme, desktop picture, screen saver and general appearance of the desktop.

Creating desktop shortcuts

By creating shortcuts (icons) on your desktop, users can speed up the process of accessing particular applications or files/folders that are regularly used. Creating desktop icons is quick and easy. From the Start menu, find the application you wish to make an icon for. Right click on the icon and then select Send to. Choose Desktop (create shortcut). This will now appear on your desktop. Rename the icon as you wish by using right click, Rename. To delete an icon, simply select the icon (left click once) and then hit the Delete key on your keyboard.
**Activity 3**

On your computer, use the above instructions to customise your desktop. Change the background picture and have 3 desktop icons to frequently used applications and 3 icons for frequently used folders. Once you have finished, do a screen capture and paste into a Word document.

Ask your teacher to watch as you return the desktop to its appearance prior to your makeover. This demonstration will be marked off a checklist.

**Organise Basic Directory/Folder Structure and Files**

Folders, also known as directories, are organised storage areas for maintaining computer files. Like filing cabinets, they help you manage your documents and files. An operating system makes it possible to store files on a computer’s disk drives (and to find them again) by imposing a structured file system.

Because everything on your computer is stored in files, before long thousands of files are on your hard disk. The Microsoft Windows operating system itself comes in hundreds of separate files, all with their own task to perform or containing important information needed to run your computer. To help avoid total file overload, Microsoft Windows lets you organise your files into folders. Each folder should contain related documents and be given a useful name so you know what it contains. Programs and data are stored in individual files in the file system. The different parts of a directory are labelled in the diagram below:
Basic directory maintenance

The table below gives instructions on how to complete basic tasks to help maintain your directories or folders.

<table>
<thead>
<tr>
<th>Task:</th>
<th>How to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delete File</td>
<td>Click on the file so it is highlighted, then hit your “Delete” key or right click your mouse and select “Delete”.</td>
</tr>
<tr>
<td>Create a Folder</td>
<td>Make sure that you are in the area where you what to create the folder. Go to File → New → Folder. Type in the name of your new folder. (Use right mouse click to change the name if a mistake is made).</td>
</tr>
<tr>
<td>Move a file to folder</td>
<td>Click on the file → Hold down mouse button and drag over to the folder.</td>
</tr>
<tr>
<td>Rename a file or folder</td>
<td>Right click on the file or folder → Rename.</td>
</tr>
<tr>
<td>Move multiple files to folders</td>
<td>Click on the first file, and then hold down the Control key (Ctrl) while clicking on others to be moved, then drag over to the required folder.</td>
</tr>
<tr>
<td>Identify attributes of directories</td>
<td>Right click on folder/directory → Properties.</td>
</tr>
<tr>
<td>Restore deleted file</td>
<td>Access file via Recycling Bin on desktop and right click, copy and then paste into desired folder.</td>
</tr>
<tr>
<td>Searching directory/drive for specific file</td>
<td>Open up file browser. Click on Search button (see left). Choose the type of file to search for, and then type in the name of the file and Search.</td>
</tr>
</tbody>
</table>

Activity 4

1. Following the instructions above, identify the attributes of a folder in your directory. A popup window will appear with different tabs. Explore the tabs. In a Word document, detail options that are available under each tab. Include screen captures to help illustrate your information.

2. Access the folder “Directory Practice” in the shared drive. Copy the folder into your own drive and perform the following tasks:
   - Create the following subdirectory system within the main folder:
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- Rename the following files in the main directory:
  - 11T1AI.doc to 11T1Exam.doc
  - 11T2AI.doc to 11T2Assign.doc
  - 11T3AI.doc to 11T3Writing Task.doc
  - 11T4AI.doc to 11T4Exam.doc
  - 12T1AI.doc to 12T1Exam.doc
  - 12T2AI.doc to 12T2Assign.doc
  - 12T3AI.doc to 12T3Writing Task.doc
  - 12T4AI.doc to 12T4Exam.doc

- Organise the files into their appropriate folders, taking into consideration that:
  - The 11 or 12 at the beginning of each file name indicates the year level;
  - The T1, T2, T3 and T4 indicate Term 1, Term 2, Term 3 or Term 4;
  - The renamed files above should be relocated to their relevant Assessment Item folders;
  - Course Outlines should be relocated to the relevant Course Outline folders and the Results to the relevant folders;
  - A copy of the class list should be pasted into the relevant folder for each term.

- Using the instructions above, search the drive for the file ICA20105 Course Outline.doc. Find the file, copy it and place into the Cert II IT folder.
- Access the class USB data stick from your teacher. Format the disk and then copy and paste the completed directory task onto the disk. Remember to use the appropriate method to safely remove the data stick before returning to your teacher.

Printers

Installing a printer

When you first buy a printer, you must remember to also purchase a printer cable. The printer will come with all necessary instructions, the printer, power cord and installation disk (containing printer driver). It does not, however, come with a printer cable. These need to be purchased separately. Whilst the power cord ensures that the printer has electricity to run, a printer cable is the device which allows the transfer of data to be printed from the computer to printer.

The first step to installing is to insert the CD into the CD drive on your machine. This disk contains the software required to run the printer – this is called the printer driver. Ensure that the printer cable is connected to the computer (see section on Ports in this booklet) and to the printer, and the printer is turned on.

The installation disk is usually run by a wizard and as such will automatically start. It will run you through a series of steps to install your printer driver. Usually you are prompted to restart your machine at the end of the installation process. This will ensure that you can print straight away without error. The computer needs to restart to fully complete the installation process. If you are not prompted, it is still a good idea to restart the computer. Once you have restarted, you will need to insert your printer cartridge (read the instruction booklet as this will be different for each machine). Then, you should proceed to print a test page to ensure that your printer is fully operational. To print a test page, go to Start  Control Panel  Printers and Faxes. Select the printer you just installed.
Within the window that opens, there will be an option to print a test page.

**Hint:** Sometimes printers are given to us, or need to be installed on a new computer and you will not have access to the installation disk with the printer driver (may have been lost). This is not a major issue, simply go to the manufacturer’s website (eg. www.canon.com.au) and download the printer driver required.

**Troubleshooting printing problems**

**What is troubleshooting?**

When you discover things are not working as they should, you need to solve the problem: you need to troubleshoot. Some computer problems are easy to solve, perhaps by asking a friend or a colleague why they think something is not working, or if they are having a similar problem with the printer or fax machine.

Sometimes the problem is bigger than that and you may need a more technical solution, and this may be when you may have to ask your organisation’s computer technician for assistance.

**Troubleshooting printing problems**

For some reason, a lot of problems can arise with printers. It can be very useful if you know how to troubleshoot printer problems yourself, and it saves you calling on other people all the time. Check the following to see if you can troubleshoot the printer problem yourself:

- Is the printer turned on?
- Does the printer have power going to it?
- Are the cables connected properly?
- Is the correct printer selected? (If you have access to more than one printer)
- Print a test page.
- Access the printer program (use instructions from printing test page above), as most printers now have a troubleshooting wizard to work through which might help solve your problem.

**Activity 5**

1. Using the drawing toolbar or the organisational chart function in Word, create a detailed flowchart that describes the steps required to install a printer.
2. What is the function of the printer driver?
3. What is the difference between the power cord and the printer cable?
4. How can you still install a printer if the installation disk is missing?
5. What is meant by the term “troubleshooting”?
6. What are the common problems with a printer?
7. Go to the machine in the lab that is the printer server (ask your teacher which one), from here, find out how to delete or put a print job on hold. Write instructions on how to do this and type into your Word document.

To finalise the unit of competency, you will need to complete the associated checklist. Ask your teacher to assess you when this booklet is completed.