

# **REAL ESTATE COMPUTING**

## **INTRODUCTION**

This a module that meets the learning objectives of the following national modules:

Computer Operations	NOS213
Database Fundamentals	NOS215
Real Estate Computing	ABH503

**NOMINAL DURATION:** 50 hours

### **COMPUTER OPERATIONS**

**PURPOSE:** Provide the participant with the underpinning knowledge and skills to effectively use a computer system.

**PREREQUISITES:** NOS118 Computer Operations - Data Retrieval or  
NOS143 Computer Operations - Fundamentals

### **LEARNING OUTCOME 1 USE RELEVANT OCCUPATIONAL HEALTH AND SAFETY PRACTICES**

**CONDITIONS:** Access to appropriate hardware and software and ergonomic furniture for each participant.

#### **1.1 CORRECT POWER ACCESS PROCEDURES**

Australia, with a 240 volt power system always has the potential of electric shocks when using electrical equipment. Computers are no different. Although the access to live wires is quite low because of its hidden works and plastic (non conducting) keyboards, basic safety procedures should be followed:

- The power supply cord to the power point should be as short as possible
- Do not use double adapters. Ideally each part of the computer system should have internal access to power but some components must have external access. In these cases the best solution is a short power lead to a built in point at the back of the computer itself. Make sure that the proper plug is used as usually the access is by way of a special two pin plug. Do not convert an ordinary domestic 3 pin plug!
- Do not use double adapters to power the myriad pieces of equipment that make up the computer system. Ideally each chord should directly access a specialist bank of points properly installed in the wall. The next best method is to use a "power board" of multiple sockets, each socket with its own switch.
- Do not use old leads, frayed leads or leads with poor wiring.
- For complete safety when opening a computer component make sure that the main wall switch is turned off. Better still, pull the plug out!
- For complete safety and the reduction of risks from fire, when finished with the computer turn it off with the wall switch. However, there is a difference of opinion here because some computers change to a power saving "stand by" mode when not used for a period of time. Some argue that as most breakdowns power consumption and fire risk is caused at start up (because of the sudden power surge) it is better to keep the computer on at all times.

## **1.2 ADJUSTING CHAIR AND WORK STATION/EQUIPMENT TO MEET ERGONOMIC REQUIREMENTS**

### **1.3 APPROPRIATE POSTURE**

### **1.4 APPROPRIATE REST AND EXERCISE PERIODS**

Few users of computer systems properly change their work methods to better use the computer over a long period to reduce physical, mental and eye strain. The starting point is a good ergonomic chair. Do not use "plush" executive type chairs as these do not provide sufficient support for your back, feet and legs. Still the best chair is that known in the office furniture trade as the Secretary Chairs as it is designed to be firm, fit the small of the back and encourage an upright posture for long periods. All staff including senior managers are better off using Secretary Chairs!

The desk used should be a dedicated computer desk as these are designed to allow the easy adjustment of the height of the key board and side wings to hold necessary documents. The document being read by the operator while typing should be mounted on a special two arm holder that can be positioned and angled in a manner that is easy to read and allowing free head movement between the computer screen. The computer's screen is known as a Visual Display Unit or VDU. The quality of the VDU is most important as will be shown later. Select an appropriate (and pleasing to you) colour combinations. It is less stressful on the eye to use white or yellow type on a dark blue background rather than the usual black type on white. That is, there is less glare emanating from the screen.

## **RECOMMENDED DIMENSIONS FOR SEATED KEYBOARD WORKSTATIONS**

These recommendations are based on A.S. 3590 - 1990 *Screen-based workstations, part 2 Workstation furniture*.

### **HEIGHT OF WORK SURFACE (height to top of the work surface)**

If fixed:	680 to 720 mm above floor level
If adjustable:	580 to 730 mm above floor level.

### **AREA OF WORK SURFACE**

Width:	1500 mm minimum
Depth:	900 mm minimum
Bench thickness over leg span:	25mm maximum

### **VOLUME OF LEG SPACE**

Width:	800 mm minimum
Depth:	550 mm minimum
Height:	580 mm minimum

### **VIEWING DISTANCE TO WORK**

Minimum:	350 mm
Maximum:	750 mm
Height of display:	30°-40° below eye level

### **SEAT PAN HEIGHT**

Surface of seat to floor:	380 to 510 mm
Seat pan width:	330 to 430 mm
Footrest area:	300 x 375 mm

These necessary requirements are shown in diagram 1:

## **DIAGRAM 1**

### **WORKSTATION SETUP FOR KEYBOARD OPERATOR**

Office workers of all kinds spend many hours using a variety of keyboard equipment. Keyboard equipment that is properly selected, coordinated and adjusted will help prevent a range of injuries caused by overuse, poor posture and poor lighting.

**CHAIRS AND POSTURE CHECKLIST FOR KEYBOARD WORKERS**

Well adjusted chairs improve body position and blood circulation, reduce muscular effort and decrease pressure on the worker's back. Chairs should swivel, have 5 wheels for stability, breathable fabric on the seat, a rounded front edge and have adjustable seat height and backrest for lumbar support. The following criteria should apply:

**WORK SURFACE HEIGHT:** Adjust the height of the work surface and/or the chair so that the work surface is approximately at finger length below the height of the elbow when seated.

**CHAIR:** Adjust the seat tilt so that you are comfortable when using the keyboard. Usually this will be close to horizontal but tilted slightly forwards. If this places an uncomfortable strain on the leg muscles or if the feet do not reach the floor then a footrest should be used. Adjust the backrest so that it supports the lower back when you are sitting upright.

**KEYBOARD PLACEMENT:** Place the keyboard in a position that allows the forearms to be close to horizontal and the wrists to be straight. That is, with the hand in line with the forearm. If this causes the elbows to be held far out from the side of the body re-check Work Surface Height.

**SCREEN PLACEMENT:** Set the eye to screen distance at the distance that permits you to most easily focus on the screen. Usually this will be within an arm's length. Set the height of the monitor so that the top of the screen is below eye level and the bottom of the screen can be read without a marked inclination of the head. Usually this means that the centre of the screen will need to be near shoulder height.

**DESK-TOP LAYOUT:** Place all controls and task materials within comfortable reach of both hands so that there is no unnecessary twisting of any part of the body.

**DOCUMENT HOLDER:** Place this close to the monitor screen in the position that causes the least twisting or inclination of the head.

**POSTURE AND MOVEMENT:** Change posture at frequent intervals to minimise fatigue. Avoid awkward postures at the extremes of the joint range, especially the wrists. Take frequent short rests rather than infrequent longer rests. Avoid sharp increases in work rate. Changes should be gradual enough to ensure that the workload does not result in excessive fatigue. After prolonged absences from work the overall duration of periods of keyboard work should be increased gradually if conditions permit.

## **LIGHTING FOR VDUs**

Place VDUs to the side of the light source(s), not directly underneath. Try to site desks between rows of lights. If the lighting is fluorescent strip lighting, the sides of the desks should be parallel with the lights. Try not to put the screen near a window. If it is unavoidable ensure that neither the screen nor the operator faces the window.

If the VDU is well away from windows, there are no other sources of bright light and prolonged deskwork is the norm, use a low level of service light of 300 lux. If there are strongly contrasting light levels then a moderate level of lighting of 400 to 500 lux may be desirable but high quality anti-glare screens may be necessary.

## **GLARE AND REFLECTION**

It is important to detect the presence of glare and reflection. To determine whether there is glare from overhead lights the seated worker should hold an object such as a book above the eyes at eyebrow level and establish whether the screen image becomes clearer in the absence of overhead glare. To detect whether there are reflections from the desk surface the worker should hold the book above the surface and assess the change in reflected glare from the screen. A number of ways are available to eliminate or reduce the influence of these reflections:

- Tilt the screen so that reflections are directed below eye level
- Purchase screens with matt or light diffusing surfaces
- Cover screens with a light diffusing surface or anti-glare screen
- Negative contrast screens (dark characters on light background) will reduce the influence of these reflections.

If VDU users experience eye discomfort when using a bright screen they should make the following adjustments:

- Turn the screen brightness down to a comfortable level. This can be judged by placing a piece of paper next to the screen and adjusting the brightness control so that the screen is similar in brightness to the paper.
- Look away into the distance in order to rest the eyes for a short while every ten minutes or so.

- Change the text and background colours - see above
- Recommended are black characters on white or yellow background, or yellow on black, white on black, white on blue and green on white.
- Avoid red and green and yellow on white.

## **USING A MOUSE**

A well designed mouse should not cause undue pressure on the wrist and forearm muscles. A large bulky mouse may keep the wrist continuously bent at an uncomfortable angle. Pressure can be reduced by releasing the mouse at frequent intervals, by selecting a slim-line, low-profile mouse and by using the mouse at a comfortable distance from the body.

## **KEYBOARD EQUIPMENT AND RADIATION**

VDUs emit radiation, particularly visible light which allows the characters on the screen to be seen. Weak electromagnetic fields and very low levels of other radiation, not visible to the human eye, can be detected by sensitive instruments. Similar emissions are produced by television receivers.

The levels of most radiations and electromagnetic fields emitted from VDUs are much less than those from natural sources, such as the sun or even the human body, and are well below levels considered harmful by responsible expert bodies such as the International Radiation Protection Association.

Given that the levels of radiation from VDUs are much lower than recommended limits, and that these limits themselves incorporate significant safety factors, it is extremely unlikely that any harm to an unborn child would result from exposure to the radiation emissions from a VDU. The weak electromagnetic fields produced by television receivers and VDUs extend in all directions, but their intensity decreases very quickly with distance from the source. A workplace should be organised to ensure that VDU operators are no closer to any other VDUs than they are to their own.

Flat screen displays, such as the liquid-crystal display used in some lap-top computers, produce even smaller amounts of radiation than those which use television-type tubes. It may be sensible to use the new types for special purposes, such as to increase portability but concern about radiation emissions should not be a factor in their choice. Although concerns have been raised that radiation from VDUs is a cause of cancer, research to date has failed to establish a causal link.

## **KEYBOARD OPERATIONS**

Employees need to move around and reduce the effects of fatigue by doing different tasks. However rest breaks should be taken if the job requires a sustained period of repetitive or static activity because task variation is not possible.

## **REST BREAKS AND KEYBOARD WORK**

Frequent short breaks are most effective in relieving the strain associated with keyboard work. For reasonably sustained keying activity a break should be taken for a few minutes every half hour. During this break operators should walk around and perform whatever movement relieves the feeling of muscle fatigue. Movements that are a natural response to fatigued muscles such as shrugging the shoulders are generally the most effective in dealing with the fatigue.

A particularly useful method of relieving muscle fatigue is to occasionally alter posture. That is, to change from the recommended posture for short duration. Some chairs have a forward tilt control that allows the worker to sit forward which can sometimes help to reduce fatigue to the muscles of the forearm, neck and shoulders.

## **EYE STRAIN**

Working with VDUs can produce tired and sore eyes and eye strain. To reduce strain take short rests and look into the middle distance or if necessary close the eyes and cover them with the hands without pressing and breathe deeply eight or nine times.

## **MUSCLE CARE AND PREPARATION**

The following exercise should be done before commencing work and after lunch breaks. However it is important to:

- Never stretch
- Refrain from doing these exercises if you have a medical condition that could be made worse by stretching.

The benefit of these exercises is best achieved by a gentle stretching action over periods of at least 30 seconds.

### **DIAGRAM 2**

***Bend your Wrist and fingers with your other hand, bending your elbow slightly at the same time, until you feel the stretch over the back of your forearm. Hold the position for 30 seconds.***

### **DIAGRAM 3**

***Stretch your arm out in front of you with your elbow straight, palm facing away from you (fingers pointing up or down). Then with your other hand pull your fingers backwards until you feel the stretch over the front of your forearm. Hold the position for 30 seconds.***

#### **DIAGRAM 4**

*Tuck your chin down onto your chest and gently turn your head from side to side, keeping your chin on your chest. Do this ten times.*

#### **DIAGRAM 5**

*Turn your head slowly from side to side 10 times.*

#### **EXERCISES FOR REST BREAKS**

#### **DIAGRAM 6**

*TALL STRETCH: Interlock fingers, palms up. Stretch arms above the head until they are straight. Do not arch the back.*

**DIAGRAM 5**

***TOE-IN, TOE-OUT: Place feet shoulder-width apart, heels on the floor. Swing toes in, then out.***

**DIAGRAM 7**

***SHOULDER ROLL: Roll the shoulders - raise them, pull them back, then drop them and relax. Repeat in the opposite direction.***

**DIAGRAM 8**

***SIDE STRETCH: Drop left shoulder, reaching left hand towards the floor. Return to starting position. Repeat on right side.***

**DIAGRAM 9**

***BACK CURL: Grasp shin, lift leg off the floor. Bend forward curling the back, with nose towards the knee. Note: This exercise should be avoided in pre- or post-natal conditions.***



**DIAGRAM 10**

***ANKLE FLEX:*** Hold one foot off the floor, leg straight. Flex ankle (pointing toes up) and extend (pointing toes toward the floor). Repeat with other leg.

**DIAGRAM 11**

***LEG LIFT:*** Sit forward on the chair and place feet on the floor. With a straight leg, lift one foot a few centimetres off the floor. Hold for a second and then return it to the floor. Repeat with the other leg.

## **FURTHER READING**

Australian Standard 1668.2 - 1991 *Mechanical ventilation for acceptable indoor-air quality*

Australian Standard 1680.2.0 - 1990 Interior lighting Part 2.0 *Recommendations for specific tasks and interiors.*

Australian Standard 1837 - 1976 *Code of practice for application of ergonomics to factory and office work.*

Australian Standard 3590 - 1990 *Screen-based workstations Part 1 - Visual display units Part 2 - Workstation furniture.*

Australian standards are available from Standards Australia.

The Working Environment Branch of the Commonwealth Department of Science and Technology have produced a Working Environment Series published in the 1980s some of which are of specific interest for office work:

- 5 Daylight at work
- 6 Artificial light at work
- 7 Sunlight at work
- 8 Colour at work
- 9 Fire safety at work
- 13 VDUs at work
- 14 Thermal comfort at work
- 15 Clean air at work
- 16 Office design at work

The National Occupational Health and Safety Commission, WORKSAFE AUSTRALIA have also published a number of relevant publications:

*Guidance note for the prevention of occupational overuse syndrome in keyboard employment.* WAP89/006, January 1989.

Office copying machines. WAP89/029, December 1989

*Ergonomic principles and checklists for the selection of office furniture and equipment.* November 1991

*Technical report of the study group on radiation and visual display units.* June 1989

*Technical report of the study group on eyesight testing of users of screen-based equipment.* (NOHSC:1004), 1992

The above publications are available at the Commonwealth Government Bookshops. Some titles may be out of print.

*Working with visual display units.* Geneva, International Labour Office, 1989. (Occupational safety and health series 61. ISBN 92-2-106509-X)

*Ergonomics for workplaces with visual display units.* Ottawa, Canadian Centre of Occupational Health and Safety, 1989

*Ergonomics in the office.* Ottawa, Canadian Centre of Occupational Health and Safety, 1989

*Screen based equipment furniture* / Byron Longstaff. In GEN (General Equipment News), v. 1 0 no.9, October 1990, pp.42-44

*Vision and the VDU operator.* Australian Optometrical Association, 1992

*Information bulletin: electromagnetic fields.* Yallambie, Victoria, Australian Radiation Laboratory, October 1992

*SBS a disease of our time?* In Safety Line, no.8 July 1990, pp.10-11, no.9 October 1990, p.12

*Prevalence of overuse injury among keyboard operators: characteristics of the job, the operator and the work environment,* Rodney Green, Christopher Briggs. In Journal of occupational health and safety Aust. & NZ, v.6 no.2, April 1990, pp.109-118.

*Musculoskeletal complaints in keyboard operators,* Ian Low. In Journal of occupational health and safety Aust. & NZ, v.6 no.3, June 1990, pp.205-211.

*Sick Building Syndrome: Reality, Myth and Mystery,* D. M. Rowe, Dept of Architectural and Design Science, University of Sydney.

*Managing Indoor Air Quality - Interim Guidelines,* Building Owners and Managers Association of Australia. Sydney, April 1991.

## **LEARNING OUTCOME 2: APPROPRIATE DISK MANAGEMENT TECHNIQUES.**

2.1-2.2 The universal disk format is now the 3.5 inch floppy. This is a high density (HD) disk that is already formatted so that it can be used immediately. It will hold about 1.44 mb of data.

### **DIAGRAM 12**

#### **FLOPPY DISK**

2.3 Floppies come with a set of stick on labels. These are attached to the disk so that it can be identified and contents file known. It is essential that a floppy is clearly labelled as to its contents and date. This will save invaluable time later when you are searching for files.

The label provides immediate notice of the floppy's contents. However, the floppy can be given a name and its contents described within the Word 6 <File> <Summary Info..> commands. Note that "<>" is a universal notation for keystroke or mouse pointing. For example, when you see <File> you know that it is the instruction to point the mouse on File in the command menu at the top of the Window and click the lefthand button. This will open the File menu from which you can then click onto Summary Info...

### EXAMPLE

Suppose you have a new floppy disk on which you intend to save a database containing tenant correspondence for a block of flats that you manage for the owner. The disk has already been labelled as:

Tenant correspondence: 10 Jones St Matrville  
Date: 1.7.95 to 31.6.96

Place the new floppy in drive a: (usually the first drive): In Word 6:

<File><Summary Info..>

A new screen ("pop up") will appear that is headed "Summary Info". There are 5 boxes in which the following useful information can be inputted:

Title: Tenants' correspondence  
Subject: 10 Jones St Matrville  
Author: Bill Brown  
Keywords: tenants correspondence Jones Matrville  
Comments: All correspondence sent to tenants in the subject building between 1.7.95 and 31.6.96.

This also illustrates the use of the floppy as an archival or backup device. If the real estate office is destroyed by fire and the data archived on floppies elsewhere, you reconstruct the rent roll from them. However, if there was no such a backup device, it would be very difficult to reconstruct the rent roll.

The keywords are used in File Manager (Windows) to search for files. This is less important on a floppy as you have the relevant information on the label. However, you generally have a number of files on the hard disk (usually drive C:) and the search command can be used to search the keywords and thus find the required files.

### 2.4 LOCKING AND UNLOCKING A FLOPPY DISK

Where the floppy is used to archive information for example it may be imperative that the data not be changed or tampered with in any way. To achieve this, the floppy can be "locked" so as to deny user input. It becomes a "read only" file. In computer jargon this is known as "preserving the integrity of the data". This can be achieved by either using the data retrieval program or physically altering a tab slot.

**USING A PASSWORD:** Each file on the floppy can only be opened using the user's password. This is done when saving a file a file on the floppy as follows:

<File><Save As><Options><Save>

This shows a new pop up box that allows a number of options when the file is saved. At the bottom is a box labelled "Protection Password". You can enter a password so that the subject file will not be opened without the user entering the correct password. The small "tick box" below converts the file to a Read Only file.

## **LOCKING THE FLOPPY**

The floppy disk can be mechanically locked by sliding a tab button on the bottom rear, right hand side of the disk. This slide can be moved with a ball point pen. When slid down the tab slot opens. When the disk is inserted, the drive will detect the open slot and protect the disk by not allowing access for tampering, changing or entering new data. The disk becomes a "read only" disk. If it is necessary to change or modify the data at all, the tab slide can easily be moved back to close the tab slot.

## **2.5 BACKING UP DISKS**

If data is valuable and important it is necessary to have not just one copy but possibly 2/3 copies. As floppy disks are so cheap the number of backups should not be limited by cost.

A floppy disk is copied or backed up as follows:

1. Go into the File Manager (Windows) program by clicking on the icon in the MAIN Window.
2. Click on the Drive A: icon at the top of the screen
3. The file names will show up in the file windows below the Menu Bar
4. <Disk><Copy Disk..>
5. A pop up box will appear headed Copy Disk. It will show the default drives as A: for both the Source disk and the destination disk. As the subject computer has only one drive (a:) the default values are correct. <OK>
6. A new box will pop up asking for confirmation of the process. Confirm Copy Disk <Yes> This safeguard is necessary as the process will destroy any data on the Destination Disk.
7. The pop up box now asks you to insert the Source Disk <OK>
8. The Copy Disk box will show the progress in committing contents to memory
9. The pop up box now asks you to insert the Destination Disk in drive a: <OK>
10. When the data in memory has been fully copied onto the Destination Disk, the box will disappear.
11. Check that the file have been copied onto the Destination Disk by clicking onto the Drive a: icon.
12. Exit File Manager <File><Exit>

## **2.6 DIFFERENT DATA STORAGE DEVICES**

There are 3 basic data storage devices used on a typical Personal Computer (PC) system:

1. RAM (Random Access Memory): The memory that can be used by applications to perform necessary tasks while the computer is on. When you turn the computer off, all information in RAM is lost.

2. ROM (Read Only Memory): Memory that can be read but not modified. The contents of this memory are retained even when the computer is turned off. It is used to initiate and start programs, the remainder of which are stored on either a floppy or hard disk. For example, the Windows logo that comes up when the Windows the computer is turned on.

2. FLOPPY DISK (PERMANENT MEMORY): The data stored on a floppy as described above is permanent in the sense that it stays there even after the floppy is removed from the a: drive.

3. HARD DISK (PERMANENT MEMORY): The hard disk cannot be removed from the computer and is built in. It has a capacity many times that of the floppy and yet allows the faster retrieval of data. As with the floppy, it is permanent in the sense that it stays there after the computer is turned off.

4. OTHER MEMORY: There are other memory types not considered in this module. For example, conventional memory, expanded memory, and extended memory.

## **DIAGRAM 13**

### ***HARD DISK***

## **2.7/2.8 THE SAFE HANDLING AND STORAGE OF DATA STORAGE DEVICES DATA PROTECTION PROCEDURES AND THE EFFECT OF POOR DATA PROTECTION**

Data storage devices are much more robust than its predecessors. Nevertheless to maximise the safe storage of data the rules shown in diagram 13 can be used when storing and handling floppy disks:

## **DIAGRAM 14**

### ***THE SAFE HANDLING AND STORAGE OF FLOPPY DISKS***

Hard disks obtain their robustness and reliability by being mounted in and protected by the computer's case. Further, the disk operates in a sealed environment that is contaminant free. However, they are still susceptible to knocks and power surges and therefore, it is imperative that the data be "backed up". Backing up can be done on dedicated tape devices (that are reliable and cheap) or by way of floppies.

The effect of poor storage device handling and protection procedures is either small (the loss of some data) or major (a hard disk "crash"). For example, if the entry grooves of a floppy are damaged it will damage the FAT (File Allocation Table) table. Although only a small part of the disk is damaged the Disk Operating System will refuse to load and find files as it depends on an uncorrupted FAT to know where the files are on the disk.

## **2.9 HARD DISK PERFORMANCE AND MEANS OF IMPROVING EFFICIENCIES.**

The hard disk is the major storage device in the computer because of its large capacity, speed of access and high reliability. With time hard disks are larger in capacity, speed of access is increasing and the same time are becoming cheaper. Improving technology is making hard disks more reliable, with greater capacity, quicker and cheaper.

Nevertheless, good file management can improve access and file retrieval time. Windows, DOS and other specialist programs can "clean up" a hard disk. This means that unnecessary files are deleted and fragmented files (as allocated by FAT) are grouped together. The grouping together of parts of a file into one contiguous whole increases access and retrieval speed. Further, the same programs will test sectors for corruption and eliminate that address from FAT.

## **LEARNING OUTCOME 3: THE MODE OF OPERATION AND APPLICATIONS FOR THE MOST COMMON INPUT/OUT DEVICES**

So far we have only described a limited number of the components of the computer system. A brief description is given of the following components:

- Keyboard QWERTY and alternatives
- Printers
- Modems
- Mice
- Scanners

### **KEYBOARDS - QWERTY**

The basic QWERTY keyboard is shown in diagram 15 below. This is sometimes known as the “AT” keyboard as its configuration (particularly in relation to the placement of the F keys were first introduced for the IBM AT Computer) and has become the de facto standard keyboard.

The QWERTY designation is used because the keys are the same as that developed for typewriters. This has the letters QWERTY on the top row of keys. The keypad also contains the cursor control keys but in practice, these have been replaced by the mouse. The cursor is the tiny blinking underscore on the display and the exact position of a keyboard entry.

The numeric keypad in the 10 key calculator format is located on the right hand side. It is designed for the rapid entry of numeric data. Note that 5 has a pimple allowing the operator with practice to know where the keys are by feel. To activate the numeric keypad you must press and engage the NumLock key. A light will turn on above the pad to show that this format has been engaged.

Other useful keys are Pg Up and Pg Dn that can be used to display the previous or next window of data. Similarly, the End and Home keys can be used to move to the end or start of a text line. Note that to use these keys NumLock must be off. See diagram 15 below:

## **DIAGRAM 15**

### ***THE STANDARD FORM QWERTY KEYBOARD***

**FUNCTION (F) KEYS:** The F keys are usually programmed in software applications (such as Word 6) to operate certain commands or command sequences. A useful F key is F5 that can be used to go to any page in a document.

Other keys have special uses in some functions. For example, the Shift keys have several functions including conversion to upper case. The shift key can also be used to type a symbol on the upper portion of any key on the keyboard. For example, \* on the 8 key. Further, you can use Shift for temporary use of the numeric keypad.

The keyboard has a backspace key (useful for deleting unwanted entries), Insert key (writeover mode), and a Delete Key that perform the functions that their names indicate. The Esc key has a number of uses including cancelling a command just entered.

Some operations require more than two keystrokes such as a “warm” boot. This requires the simultaneously pressing of the Ctrl, Alt and Del keys. This shown in notation a <Ctrl>+<Alt>+<Del>. Note that when a program freezes, sometimes it can be restarted with <Ctrl>+<Break>.

## **THE MOUSE**

The mouse is now a standard input device for PCs. It is a pointing device that moves the cursor by moving the mouse across a mouse mat. It has the advantage of being quick, intuitive and with practice, accurate. However, it must be properly set and adjusted for maximum use.



The 2 buttons are used to click onto an icon or into a document (lefthand button) or to bring up certain menus (righthand button). The buttons should have a positive feel and click when pressed.

## **DIAGRAM 16**

### ***THE STANDARD MOUSE***

## **PRINTERS**

The printer is an output device. Output devices make the information resulting from the processing available for external use. The printer produces “hardcopy” as opposed to the soft copy available from a file on the VDU. The old “impact” printers have gone out of favour, particularly in the office environment because of their noise and inherent inability to print good quality graphics. The 2 most popular printers today are:

- The laser
- The bubblejet.

**THE LASER:** The Laser produces the best copy but is the more expensive of the 2 systems. It is sometimes known as a “page” printer as it processes the data one page at a time. It uses a laser beam focused on a photoconductor to form the images to be printed. The photoconductor attracts particles of toner that are fused onto paper to produce an image. It can print graphics of a high quality and being non impact, any font or design variation on the VDU. However, the main advantage is the high quality of output approximating professional printing leading to the concept of “desktop publishing”.

**THE BUBBLEJET:** The bubble jet does not produce images of the quality of a Laser but is a great deal cheaper and produces images of good quality suitable for most occasions. Further, it is quicker than the common laser.

The most popular form of networking is a Local Area Network (LAN) as shown in diagram 17. In such a network, a high speed cable or communication line connects each PC and related

equipment. Typically, everyone on line can share databases, programs and printers and can communicate through Electronic Mail (E Mail).

## **SCANNERS**

A scanner is an input device and are becoming increasingly popular in the office environment. They are device similar to a photocopier where a source of light scans a page and converts the image into an electronic format that is, creates a graphic image within a software program. Therefore, they are particularly useful for graphics where it is necessary to convert a hard copy image into an electronic image that can for example, be inserted into a Word 6 document.

The other important use of a scanner is known as Optical Character Recognition (OCR). This is where the scanned image is read by an OCR "engine" that converts the image into word processing characters (ASCII). That is, it saves the operator from typing data directly into a computer program. With expertise and a good OCR program quite accurate results are obtained.

## **MODEMS**

A modem is an interface device that allows the computer to communicate with other computers over the telephone line. Therefore, a great deal of power is possible as it allows the very quick (nearly "instantaneous") transfer of data to receivers anywhere in Australia or the world. It is necessary to have a modem to communicate with staff in other offices using E Mail facilities. Access to the Internet is by way of modem. This is a world wide database system that allows users to communicate and access information in any area of interest. It is only necessary to know the network address.

## **LEARNING OUTCOME 4: LANS AND COMMON NETWORKING ALTERNATIVES**

**NETWORKS:** Networking is particularly useful in medium and large offices. It enables many users to share common computer files, programs and resources. For example, an office need buy only one high quality and fast printer to shared by staff instead of a number of poorer quality printers.

**EXAMPLE:** In a Real Estate Agent's office it useful for receptionist to have access to the tenant's file kept and maintained by the property manager so that when the tenant comes in to pay rent, the receptionist can automatically enter payment details. However, networking can also create problems including higher risk to data (eg if the network server "goes down") , privacy and data integrity. The main components of computer network are shown below:

### **DIAGRAM 17**

#### ***A LOCAL AREA NETWORK (LAN) IN A MANUFACTURING ENVIRONMENT***

## LEARNING OUTCOME 5: MANAGE ELECTRONIC FILES

### 5.1 THE FUNCTIONS REQUIRED OF A TYPICAL OPERATING SYSTEM

The operating systems of importance today are:

1. DOS
2. Windows

**DOS:** DOS is the abbreviation for Disc Operating System. For PCs it is a system designed by Microsoft that allows the components of the computer system (for example, the PCU and memory and keyboard) to communicate with external inputs and outputs through the disc drive. Therefore, DOS provides a system where you can save a document created on a word processing program on a compatible floppy disk. Although DOS programs are still available nearly all major software programs today are in the Windows environment.

**WINDOWS:** Windows is also an operating program developed by Microsoft. Although strictly, DOS is still there it is hidden behind the higher level Windows program. Windows depends particularly on Graphical Users Interface (GUI) and the mouse for its operation. It is designed to be more “user friendly” in that the operator can load and save data by simply pointing and clicking on icons with the mouse. Word 6 for example, is loaded by double clicking onto the Word 6 icon in the appropriate window. Rightly or wrongly, Windows has become the almost universal office system and this module is written on the assumption that you are using or have access to Windows.

The universal use of Windows that is automatically loaded when the PC is turned on has made knowledge of DOS and other operating systems unnecessary.

### 5.2 USING THE OPERATING SYSTEM FOR FILE MANAGEMENT

File management is achieved using the File Manager program in the Main Window in Windows. It is a powerful program that can help you organize your files and directories. You can use it to view all files and directories and build a structure most suitable to you. It is a common fault of most operators that they do not use File Manager enough. They do not create enough directories nor do they use enough subdirectories for the most efficient file management system.

File Manager can be used to move and copy files, start applications, connect to networks, print documents and maintain disks. You can also associate a file with an application so that you can start the application and open a file at the same time. That is, you need only double click on the file name to straight away enter into it.

When you first start File Manager a directory window appears displaying the contents of the current drive. This directory window is split:

- The left half displays the *directory tree*
- The right half lists the contents of the current directory.

The directory tree shows the structure of the directories on a disk (usually drive c:). The first directory structure begins at the upper left with the *root directory* (C:\). Other directories branch off below the root directory. The root directory is created when you format a disk and is shown by a

backslash. For example, C:\. is the root directory for drive C. The parts of the directory window are shown below in diagram 18.

File manager has direct commands in the menu window for:

- Searching or locating a file
- Deleting a file
- Renaming a file
- Copying a file
- Duplicating a file
- Protecting a file.

## **DIAGRAM 18**

### ***PARTS OF THE DIRECTORY WINDOW IN FILE MANAGER***

## **5.3 PROGRAM FILES, DATA FILES AND SYSTEM FILES**

When you look at various file names in File Manager you will have noticed that each file has a 3 letter extension. For example, if you save a document named TENANTS (a maximum of 8 letters is allowed) under Word 6 it will automatically be saved as TENANTS.DOC. The .DOC extension tells WORD program that it is a WORD file. Similarly, other programs will have different extensions recognised by that program. For example, if you save TENANTS as a spreadsheet program in Excel it will be saved as TENANTS.XLS. This tells Excel that it is a spreadsheet program in Excel and can be loaded as such.

Documents such as those created in WORD 6 are known as ASCII documents as they are constructed of "alpha" characters according to the ASCII code. On the other hand a spreadsheet and databases are saved according to other formats appropriate to the type of file. A "data" file is any file that contains information. Therefore, .DOC and .XLS files are "data" files.

System files are files that contain information required for running the operating system. It is not shown in the directory listing and therefore, is known as a “hidden” file. Therefore, you should not try to alter, delete or change a system file.

There are specialist program files that are used to start a program. They usually have the extension .EXE (execute) or .COM (command). These extensions tell Windows that the files are programs that can be run.

#### **5.4 PRINT A FILE REGISTER**

File Manager allows you to easily print a file register. Once you have clicked onto the directory that you want printed out on the lefthand window the files in that directory are displayed on the right hand side.