

## **Unit 1: Introduction to Computer Literacy**

### **Unit Guide**



### **Lecturer Support Material**

## Acknowledgements

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September 2003



**Primary and Secondary Teacher Education Project**

Australian Agency for International Development (AusAID)  
GRM International

*Papua New Guinea-Australia Development Cooperation Program*

## Unit outline

Unit		Modules
<b>Unit 1</b>  <b>Introduction to Computer Literacy</b>	1.1	Computing basics (Core)
	1.2	Finding computer based information (Core)
	1.3	Using Microsoft Word (Core)
	1.4	Using Microsoft Excel (Core)
	1.5	Using Microsoft Outlook for email (Optional)
	1.6	Making presentations using Microsoft PowerPoint (Optional)

## Icons used in the study materials



Read or Research



Write or Summarise



Activity or Discussion



A computer activity

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# The Computer Literacy Unit

## ***Introduction***

This handbook presents an overview of the computer literacy unit. This unit is an important part of the development of computer literacy in your students. Development of such skills will allow your students to make best use of the learning centre at your college, and will provide basic ICT skills for learning and academic work broadly across your college curriculum.

## ***Credit points, time allocation and timing***

The unit is a minimum of two credit points and involves a minimum of two hours a week of student contact time (i.e. 26 hours per trimester). Students will have maximum opportunity to utilize skills in their learning at college and to strengthen these skills if the unit is located early in the college program. The design of this course assumes that in addition to two hours lecture contact each week, each student will have a further two hours per week access to the learning centre computers. Therefore, students will have approximately 50 hours in total to complete this course. Modules 1.1 (Computing Basics), 1.2 (Finding Computer Based Information) and 1.5 (Using Microsoft Outlook for email) require a minimum of two hours contact (minimum of 4 student hours). Modules 1.3 (Using MSWord), 1.4 (Using MS Excel) and 1.6 (Using PowerPoint) require a minimum of 4 contact hours (8 student hours).

## ***Unit structure***

The unit is made up of six possible modules, four of which are core and two are elective (the college can choose). The core consists of an introductory module, a module on searching for information on a database (Encarta), a module on basic MSWord and a module on basic MExcel. However, even within the core it is possible that colleges may wish to further focus the coverage by excluding the Excel module.

## ***Description/rationale***

This course aims to develop in students an awareness, understanding and basic skills in the use of computers. The skills they acquire will assist them in their studies of all subjects in the PTC curriculum and help them to cope with the technological changes brought about by increasing use of computers in PNG society. Specifically, the Computer Literacy unit aims to:

1. Promote an understanding of the role of information technology in society
2. Provide computing skills and knowledge to assist students' learning
3. Develop confidence in the use of computers for problem solving

Computer literacy skills are necessary for students to gain maximum advantage of the Learning Centre. The Centre provides computer-based technology in support of

teaching and learning broadly across the PTC curriculum. As such it is critical for the development of computer literacy that skills be applied broadly across the college curriculum. This unit is only an introduction to the skills and knowledge for academic computer use. It will be necessary for staff in other curriculum areas to examine ways in which computing skills and knowledge can be applied to their area to ensure the learning benefits that computer literacy and computer technology provides, and to strengthen student computer literacy skills.

## ***Learning outcomes***

Listed below are suggested specific learning outcomes for the unit. Most of these outcomes are practical in nature and emphasize skill development. The content and suggested tasks associated with these outcomes are covered later in this booklet.

Students will:

1. Identify and state the main reasons for the use of computers in education
2. Demonstrate a positive attitude towards the use and care of computers
3. Identify computer parts and describe their functions, and use common computing terms competently
4. Start up and shut down a computer correctly and use the basic Windows environment
5. Use CDROMs and server data bases to collect and synthesize information
6. Use a range of computer applications such as:
  - MS Word
  - Excel
  - *PowerPoint*
  - *Outlook (e-mail)*
7. Present information clearly, using one or more of the above applications

(Note: Those in *italics* are college optional)

## ***Content details***

The achievement of the above learning outcomes is based on content that forms a basic set of skills and knowledge in using computers for learning and academic work. An overview of the content is given immediately below. A suggested break-up of how this content might be organized into modules is also provided. The course details table that follows gives further information on the relationships between learning outcome, content, methodology, assessment and timing.

### **Module 1.1: Computing Basics**

<b>Learning outcome 1: Identify and state the main reasons for the use of computers in education</b>
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***Content:***

1. Skills for learning. Computer literacy provides skills for learning and academic work. These skills will be useful for these students; however, it is also useful for these trainee teachers to have an appreciation of the role that computers can play

in education generally, particularly as computers increasingly find their way into PNG schools.

2. Skills for living and survival in society. This is based on the premise that education is about providing people with skills for survival in society. Computers play a significant and growing role in PNG society, thus education (in this case PTC education) should provide basic computer survival skills for graduates.

<b>Learning outcome 2: Demonstrate a positive attitude towards the use and care of computers</b>
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**Content:**

Using computers properly requires positive attitudes of care and maintenance, which are reflected in the way users care for and use computers. This will not only help care for college computers but will develop a good attitude of care in students beyond the college and with technology generally. The following areas will be covered:

- basic cleaning and dusting of equipment
- the importance of virus protection
- following Learning Centre rules of operation, guides, instruction etc
- problem reporting
- applying good posture and eye care practice
- applying good electrical safety practices

<b>Learning outcome 3: Identify computer parts, describe their functions, and use common computing terms competently</b>
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**Content:**

Learning about using computers requires some knowledge of the parts of a computer and what they do. This section will introduce the major components of a computer system without going into any great technical details.

*Hardware components*, for example:

- keyboard
- mouse
- monitor
- computer housing (central processing unit and hard drive etc)
- memory
- storage devices
- printer
- uninterrupted power supply

*Software components*, (instructions that tell the computer what to do). For example:

- Windows
- MSWord
- Excel
- PowerPoint
- Outlook

*Computer terms.* Learning about computers means having to learn some of the terms associated with computers. Some of these will be covered in the content of this unit and in addition, a glossary of terms is included in each student module.

**Learning outcome 4: Start up and shut down a computer correctly and use the basic Windows environment including:**

***Content:***

Students will learn to correctly start up and shut down a computer and how to log in and out of their user accounts. In addition they will learn the basic feature of the windows environment including:

- mouse functions and control
- logging-on and logging-off to their user account
- using the 'Start Menu' to 'Search' for files, and select 'Documents' and 'Programs' folders, and files and applications
- using the Desktop environment shortcuts e.g. 'My Computer', 'My Documents', 'Recycle Bin', task bar, etc
- performing basic file management operations such as opening, saving, copying, duplicating and deleting files

The above elements are introduced early in the unit, however, development and practice of these skills occurs throughout the unit.

**Learning Outcome 5: Use CDRoms and/or server databases to collect and synthesize information**

## Module 1 2: Finding computer based information

***Content:***

Computers can be used to store and access information. This can vary from information stored on a CDROM (such as Encarta) to information stored on the hard drives on individual machines and on the college server. There is also vast information available on the broad Internet. The networking of computers in the Learning Centre do not have open Internet access, however, it is possible to establish an Intranet on which appropriate and useful information for the college students and staff can be located in a form similar to that found on the broader Internet. Where you have an Internet connection available for staff or the Centre you may be able to search for appropriate resources to download for you students to use. Students will need some instruction on how to search for information and how to use this in their learning and academic work.

Students will:

- correctly handle CD ROMs
- insert, load and open CD ROMs
- identify, select and enter a database or Intranet site containing databases or information
- find and analyze required information correctly
- develop a report using MS Word and Excel (Modules 1.3 and 1.4)

- develop and present a presentation using PowerPoint (optional, Module 1.6)

For example, students will research a topic using the available computer based resources (eg Encarta) then synthesize this information and represent it as a report and presentation. This would require them to use a range of hardware and software and so further develop their skills and learning.

**Learning outcome 6: Use a range of computer applications such as MS Word, Excel, PowerPoint, Outlook (e-mail)**

### Module 1.3: Using Microsoft Word

***Content:***

MSWord is a word-processing application that allows users to generate and layout text and graphics for display on the computer screen or printing.

Students will use MS Word to:

- create a new document
- open an existing Word document
- perform basic text generation
- cut copy and drag and drop text
- set font size, style and emphasis
- justify text and set paragraph features
- use spell checker in-text and globally
- Create, insert and edit a table
- insert and edit graphics
- print a document

The above is taught using a word processing exercises such as preparing a brief report, a letter or typing an assignment from another unit. Students will prepare a brief research report using MSWord. The objective is **not to** develop competent typing skills. Students will be able to develop these independently using a typing tutor if they wish. The aim is to develop basic texting and text layout skills and to reinforce the skills covered in Learning Outcome 4

### Module 1.4: Using Microsoft Excel

***Content:***

Excel is a spreadsheet application that allows users to generate and layout numbers and text and to perform calculations for display on the computer screen or printing.

Students will use Excel to:

- open an existing spreadsheet
- design a simple spreadsheet including basic calculations (sum, difference, products)

- input text/numbers/formulae into cells
- basic editing of spreadsheet layout
- generate a graph from a data table

Students undertake a number of basic exercises in Excel culminating in the preparation of a table and chart, which they can paste into their research project.

## Module 1 5: Using Microsoft Outlook for e-mail (optional)

### ***Content:***

Outlook is a comprehensive program with a number of features. In this unit, students will learn the basic e-mail facility in Outlook. The computers in the Learning Centre are networked with an e-mail server so that each student and staff at the college can have an email account established. Initially this e-mail is only available on the college Intranet (a local and isolated network). However, this e-mail facility is useful for college communications, personal communications and teaching.

Students will use Outlook to:

- generate and send an e-mail message
- attach a file to a message
- select folders (in box/out box etc)
- receive and read an e-mail message
- save and delete messages

One example of how lecturers might use this facility is to have students organized in class groups of e-mail addresses. Each lecturer could send out messages, tasks assignments etc to the class which require the student to complete a task and return the task via an e-mail.

<b>Learning outcome 7: Present information clearly using one or more of the above applications</b>
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## Module 1 6: Making Presentations Using Microsoft PowerPoint (optional)

### ***Content:***

PowerPoint is an application that allows users to generate and layout text and graphics for display on a data beam projector, the computer screen or printing. It is particularly useful for presentations.

Students will use PowerPoint to:

- develop a simple presentation
- use different fonts and layout
- use transitions and animation
- insert pictures and clip art
- develop master slides
- develop notes

Students are helped to prepare a PowerPoint presentation of their project developed in earlier modules. Using PowerPoint allows students to examine ways of integrating technology into a teaching presentation, which may also include the use of MSWord and Excel. When teaching PowerPoint opportunities exist to reinforce skills and knowledge developed in the Professional Development strand.

### ***Teaching and learning strategies***

Developing computer literacy requires some direct instruction, however, the most significant learning and skill development occurs when learners engage actively with the technology in practical problem solving. In this regard a research project is used as the major learning focus in this unit, where students will research a topic and present a report using Information Communication Technology (ICT), and thus through this develop their skills in ICT. Other teaching and learning strategies to be used include:

- demonstrations
- research project
- use of PowerPoint presentations
- guided tours where a lecturer takes the learner step by step through a procedure
- self paced activities
- group work and cooperative learning
- surveys
- student presentations

**The emphasis should be on problem-based learning where the problems are located in real issues.**

### ***Assessment strategies***

A range of assessment approaches can be used. Assessment will have a practical focus in that the main purpose is the development of computer literacy skills. The practical project that students undertake is the major assessment item and should be at least 70% of the total assessment. Assessment strategies may include:

- project
- practical tests
- theory tests
- worksheets
- presentations

### Suggested course details

The following table provides further details of the proposed Computer Literacy Unit. For each learning outcome a more detailed description of content, suggested activities/methodology, assessment and timing is provided.

Learning Outcome	Content	Activities/Methodology	Assessment	Time
Identify and state main reasons for the use of computers in education	<p>1. <i>Skills for learning.</i> Computing skills are useful in facilitating learning.</p> <p>Computers:</p> <ol style="list-style-type: none"> <li>can be used as a place where information is stored or can access stored information such as on CDROMs or on servers and Internet based databases</li> <li>provide tools for data analysis, organization and presentation</li> <li>provide media for instruction</li> <li>are a tool to aid and promote thinking</li> <li>provide educational management tools</li> </ol> <p>2. <i>Skills for living and survival in society.</i> Papua New Guinea is already a computer based society in that many institutions and communications/interactions are computer based. Additionally skills in using computers are becoming useful in society and as this technology becomes more available in schools (which is happening) teachers will benefit from having computer literacy skills</p>	<ul style="list-style-type: none"> <li>direct instruction and discussion</li> <li>use of exercises</li> <li>class activities</li> </ul>	<ul style="list-style-type: none"> <li>class discussion</li> <li>component of a class test</li> </ul>	Week 1 : covered as part of the first session/lecture
Demonstrate a positive attitude towards the use and care of computers	<p><i>Care and maintenance</i></p> <p>Computing equipment requires particular care and maintenance. Many aspects of this are the responsibility of the user. Students will need to understand the importance of caring and maintaining computers and associated equipment and facilities that they use. The Learning Centre and College Computer Use Policy and the rules of the Learning Centre will outline user responsibilities. Students will need to help keep the equipment clean, be aware of and follow virus protection, follow rules of operation, report problems, follow guides/instruction booklet, demonstrate good posture/eye care, electrical safety etc</p>	<ul style="list-style-type: none"> <li>outline of the rules of the Learning Centre and College Computer Use policy</li> <li>discussion of these rules</li> <li>demonstration of user maintenance and checking procedures</li> </ul>	<ul style="list-style-type: none"> <li>class discussion</li> <li>component of a class test</li> <li>ongoing demonstration by student of positive attitude</li> </ul>	Week 1 : Rules etc covered in the first week however, this will be reinforced and regularly assessed

Learning Outcome	Content	Activities/Methodology	Assessment	Time
<p>Identify computer parts and describe their functions, and use common computing terms competently</p>	<p>Computers are made up of hardware and software parts. The hardware is the electronic and mechanical parts of the computer. Each hardware part has a particular function. Some hardware parts are on every computer while others are on just some computers.</p> <p><i>Hardware components</i></p> <ol style="list-style-type: none"> <li>1. The controlling part of the computer; here the Central Processing Unit (CPU) is a key component. The CPU coordinates many of the computer's activities. The CPU needs instruction to make it work. The Random Access Memory (RAM) is where instructions and information is temporarily stored</li> <li>2. Input devices: the keyboard, scanner and mouse are the main input devices—these allow us to give the computer instructions and to put information into the computer. The keyboard is like a typewriter. The mouse allows us to move a pointer on the computer screen and do other things. A scanner allows the computer to read printed text or to take a picture of a document. Other input devices are still and video cameras</li> <li>3. Output devices: the monitor (Visual Display Unit), speakers and printer are the main output devices. These allow the computer to present information in a way that we can read or understand it.</li> <li>4. Storage devices. The computer can store information in a Hard Disk in the central processing unit box. Information can also be stored on floppy disks and on CDRead-Only-Memory (CDRom).</li> <li>5. Other components. An uninterrupted power supply (UPS) is used to protect the computer and keep it going if the power goes off. A UPS uses a battery to do this. Computers that are connected together are called a network of computers or a network for short. In a network one computer, called a server, is used to coordinate some things like printing and sharing of information</li> </ol> <p><i>Software:</i> This is the electronic instructions that tell the computer what to do. There are two main types of software 1) Operating system, such as Windows 98 or Windows 2000. This software is the main set of instructions controlling all of the computer activities. 2) Applications, such as MSWord, PowerPoint and Excel. The applications are the tools that allow us to do special things with the computer. A computer is not alive and it will only do what the software instructs it and what we tell the software to do.</p> <p><i>Computer terms</i> e.g. PC, UPS, CPU, Operating system, HD, Menu Bars, tool bar, network, CD, memory (RAM,ROM) etc. A glossary of terms is provided in the Learners Guides.</p>	<ul style="list-style-type: none"> <li>• direct instruction and discussion: the components will be identified</li> <li>• demonstration and modeling</li> <li>• use of exercises</li> <li>• class activities</li> <li>• use of a glossary of terms</li> </ul>	<ul style="list-style-type: none"> <li>• class discussion</li> <li>• component of a class test</li> <li>• Module exercise</li> </ul>	Week 1

Learning Outcome	Content	Activities/Methodology	Assessment	Time
<p>Start up and shut down a computer correctly and use the basic Windows environment</p>	<p>Students will learn to correctly start up and shut down a computer and how to log in and out of their user accounts. In addition they will learn the basic aspects of the windows environment including:</p> <ul style="list-style-type: none"> <li>• mouse functions and control</li> <li>• logging-on and logging-off to their user account using the 'Start Menu' to 'Search' for files, and select 'Documents' and 'Programs' folders, and files and applications</li> <li>• using the Desktop environment shortcuts e.g. 'My Computer', 'My Documents', 'Recycle Bin', task bar, etc</li> <li>• perform basic file management operations such as opening, saving, copying, duplicating and deleting files</li> </ul>	<ul style="list-style-type: none"> <li>• direct instruction and discussion</li> <li>• demonstration and modeling of the processes</li> <li>• use of exercises on mouse control and identification of different parts of the Windows environment</li> </ul>	<ul style="list-style-type: none"> <li>• part of class test</li> <li>• elements of this will be assessed within specific activities associated with use of the applications below</li> </ul>	Week 2
<p>Use CDRoms and server data bases to collect and synthesize information. Present information clearly using one or more of the above applications</p>	<p>Computers can be used to store and access information. This can vary from information stored on a CDRom (such as Encarta) to information stored on the hard drives on individual machines and on the college server. There is also vast information available on the broad Internet. The networking of computers in the Learning Centre initially will not have Internet access, however, it is possible to establish an Intranet on which appropriate and useful information for the college students and staff can be located in a form similar to that found on the broader Internet. Students will need some instruction on how to search for information and to use this in their learning and academic work.</p> <p>Students will:</p> <ul style="list-style-type: none"> <li>• correctly handle CDRoms</li> <li>• insert, load and open CDRoms</li> <li>• identify, select and enter a database or Intranet site containing databases or information</li> <li>• find and analyze required information correctly</li> <li>• develop a report using MSWord and Excel</li> <li>• develop and present a presentation using PowerPoint</li> </ul>	<ul style="list-style-type: none"> <li>• direct instruction and discussion</li> <li>• demonstration and modeling of the processes</li> <li>• for example, students might be asked to research a topic using the available computer based resources related to either their study in another college unit or related to the PNG primary curriculum. Then synthesize this information and represent it as a report and presentation. This would require them to use a range of hardware and software and further develop skills.</li> </ul>	<ul style="list-style-type: none"> <li>• assessment of the written report and PowerPoint presentation</li> <li>• assessment of the presentation</li> </ul>	Weeks 3-4

Learning Outcome	Content	Activities/Methodology	Assessment	Time
Use a range of computer applications such as: <ul style="list-style-type: none"> <li>• MS Word</li> <li>• Excel</li> <li>• PowerPoint</li> <li>• Outlook (e-mail)</li> </ul> MS Word	MSWord is a word-processing application that allows users to generate and layout text and graphics for display on the computer screen or printing. Students will use MS Word to: <ul style="list-style-type: none"> <li>• create a new document</li> <li>• open an existing Word document</li> <li>• perform basic text generation</li> <li>• set font size, style and emphasis</li> <li>• use ruler for layout</li> <li>• use spell checker in-text and globally</li> <li>• create, insert and edit a table</li> <li>• insert and edit graphics</li> <li>• print a document</li> </ul>	<ul style="list-style-type: none"> <li>• direct instruction and discussion</li> <li>• demonstration and modeling of the processes</li> <li>• use a word processing exercise such as preparing a brief report, a letter or typing an assignment from another unit. The objective is not to develop competent typing skills. Students will be able to develop these independently using a typing tutor if they wish.</li> <li>• the aim is to develop basic texting and text layout skills and to reinforce the skills covered in Learning Outcome 4.</li> </ul>	Assessment of finished document against a checklist	Weeks 5-6
Excel	Excel is a spreadsheet application that allows users to generate and layout numbers and text and to perform calculations for display on the computer screen or printing. Students will use Excel to: <ul style="list-style-type: none"> <li>• open an existing spreadsheet</li> <li>• design a simple spreadsheet including basic calculations (sum, difference, averages)</li> <li>• input text/numbers/formulae into cells</li> <li>• edit spreadsheet layout</li> <li>• generate a graph from a data table</li> </ul>	<ul style="list-style-type: none"> <li>• direct instruction and discussion</li> <li>• demonstration and modeling of the processes</li> <li>• taught via linking to a research problem in one of the other college units. For example, it would be possible to collect data from an agricultural project and input this data into a spreadsheet and display it in various ways.</li> </ul>	Assessment of finished document against a checklist	Weeks 6-7

Learning Outcome	Content	Activities/Methodology	Assessment	Time
PowerPoint	<p>PowerPoint is an application that allows users to generate and layout text and graphics for display on a data beam projector, the computer screen or printing. It is particularly useful for presentations.</p> <p>Students will use PowerPoint to:</p> <ul style="list-style-type: none"> <li>• develop a simple presentation</li> <li>• use different fronts and layout</li> <li>• use transitions and animation</li> <li>• Insert pictures and clip art</li> <li>• develop notes</li> </ul>	<ul style="list-style-type: none"> <li>• direct instruction and discussion</li> <li>• demonstration and modeling of the processes</li> <li>• the module could be taught via way of a mini project, which requires a presentation of results. This would allow students to examine ways of integrating the technology into a teaching presentation, which may include the use of MSWord and Excel as well.</li> </ul>	Assessment of finished presentation against a checklist	Weeks 8
Outlook (e-mail)	<p>Outlook is a comprehensive program with a number of features. In this unit it is proposed to teach students the e-mail facility in Outlook. The computers in the Learning Centre will be networked and an e-mail server will be established so that each student and staff at the college will have an account. Initially this e-mail will only be available on the college Intranet (a local and isolated network). However, this e-mail facility will be useful for college communications, personal communications and teaching.</p> <p>Students will use the Outlook e-mail to:</p> <ul style="list-style-type: none"> <li>• generate and send an e-mail message</li> <li>• attach a file to a message</li> <li>• select folders (in box/out box etc)</li> <li>• receive and read an e-mail message</li> <li>• save and delete messages</li> </ul>	<ul style="list-style-type: none"> <li>• direct instruction and discussion</li> <li>• demonstration and modeling of the processes</li> <li>• one example of how lecturers might use this facility is to have students organized in class groups of e-mail addresses. Each lecturer could send out messages, tasks assignments etc to the class which require the student to complete a task and return the task via an e-mail.</li> </ul>	Students successfully send and receive an e-mail including using attachments	Week 9
			•	Weeks 10 -13 can be used for catch up or revision or further development

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